AUDIO LIGHT

The Music Studio™ 88

The Music Studio 88™ User's Manual

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Music Studio^{tm} 88

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Music Studio^{tm} 88

Designed and Developed by Audio Light, Inc.

User's Manual

Version 1.3

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Preface

The *Music Studio*^{tm} *88* was designed and developed by **Ric Forrester** and **Rick Parfitt**. Ric and Rick are both principal designers at Audio Light, Inc.

Music Studio 88 represents a major improvement over the old program, *Music Studio* for the ST. This version of *Music Studio* is being published directly by Audio Light. Any questions or problems should be directed to Audio Light. Questions about the Amiga, the Tandy, the IIGS, the C64, and the Atari 800 versions of *Music Studio* should be directed to Activision of Mt. View Ca.

We hope to make further improvements to the program in the future, your comments and suggestions are appreciated. If you wish to freely share your suggestions for improving the product, please write them down and send them to Audio Light, P.O. Box 893, Los Gatos, Ca. 95031.

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Introduction

Features of The Music Studio 88

The Music Studio 88 is your fast, fun, and creative way to compose, edit, play, orchestrate and record music. Using standard musical notation and easily mastered tools, you make up and play your own tunes, or transcribe your favorite music -- anything from rock to jazz to classical.

The screen is your musical manuscript. But it does far more than a standard manuscript page.

The Music Studio 88 brings your compositions to life. Using its powerful tools, you select instruments and place notes on the staff to compose a tune. Then, change instruments, alter the sound of the instruments, speed up or slow down the tempo, change keys, and playback what you've written -- even add lyrics to your work. When you're finished, save it all to play anytime.

The Music Studio 88 offers a number of features for composing and playing back your musical compositions:

- Compose songs using standard musical notation: notes, rests, key and time signatures, accidentals, repeats, and more.

- Save and playback your songs at any time.

- Multi-track your songs to isolate specific parts: harmony, melody, rhythm.

- Orchestrate your songs using 15 instrument voices

- Design your own instruments

- Play songs through a **MIDI**-compatible instrument, with sixteen **MIDI** channels and access up to 128 different **MIDI** presets.

- Add up to three verses of lyrics to display as your tune plays.

- Edit passages of music: move, repeat and copy sections, transpose a passage up or down.

- Enter notes directly from your **MIDI**-compatible instrument.

- Works with mouse and a whole set of intuitive "point and click" composition tools.

With all these features, *The Music Studio 88* is the easiest way for anyone to get started in computer music -- beginner or pro.

How To Use This Guide

This guide has three sections.

A Guided Tour takes you through all the basic features of the program. It makes several stops along the way to let you experiment with the program and become familiar with how it works.

The **Reference** section covers every aspect of *The Music Studio 88*. It's the place to find anything not covered in the guided tour. The **Reference** section is organized by the way things appear on the screen: the work area and composition tools, the playback tools, and the accessory menus are each covered in turn.

The **Glossary** lists and defines special musical terms used in the guide that you may not be familiar with.

Note: While this manual won't try to teach you about music or composition, you can learn a lot if you follow the guided tour from start to finish. And be sure to look in the **glossary** for definitions of any terms you don't under-stand.

Before Starting

You don't need a whole lot of preparation to get started using *The Music Studio 88*. You do need a couple of disks, and a few simple connections. Then, you're ready to switch on your computer and start the music!

The Program Disk

The Music Studio 88 program disk contains the program, along with a number of sample songs that demonstrate the *Music Studio's* powers. It also includes sound files so you can load alternate instrumentation for the 15 voices used by the *Music Studio*. The program disk is copy protected, so you should not save your song or sound files to it.

A Blank Disk

To save your own original music or voices, you'll need a blank, formatted disk. You can format a disk from *Music Studio*, if you desire.

The MIDI Connection

If you're using a MIDI-Compatible instrument with *Music Studio*, you need two MIDI adaptor cables. Connect the Computer MIDI out to the MIDI instrument IN and connect the Computer MIDI in to the the MIDI instrument OUT.

Throughout this manual, the Casio CZ-101 Synthesizer is used in discussions of MIDI features. Since MIDI is an industry standard, the basic techniques should be the same for any MIDI-equipped instrument.

Using The Mouse

There are three ways to compose music and choose tools with the mouse. For each of them, you first move the mouse so that the tip of the pointer is on a specific part of the screen.

Click - Push and release the mouse button.

Press - Push and hold the mouse button.

Drag - Press, then move the mouse right/left or up/down, depending on the object you're pointing to.

A Note On Type Styles

In this guide, **boldface** type is used for words and messages that appear on the screen. Boldface is also used for words you're supposed to type or keys you're supposed to press. For example,

Press **Return**

means that you're to press the key that has the word Return printed on it.

In addition, phrases or concepts of importance may appear in **boldface** type.

A Note to the Adventuresome

If your prefer to explore *The Music Studio 88* on your own instead of working through the guided tour in the first six chapters, there's no reason not to. *Music Studio* is simple and straightforward and works the way you'd expect it to.

In case you do need help, the **Reference** section contains an explanation of every item on every *Music Studio* menu.

A Guided Tour

Chapter 1

A Look Around The Music Studio 88

Starting The Music Studio 88

When you have taken care of all the basics, you're ready to start:

1. Insert *The Music Studio 88* into the disk drive.

2. Turn on the **ATARI ST** computer, disk drive and monitor.

3. Double click on the program AUDIO88.PRG. The screen should go blank and then *The Music Studio* title screen should appear. The program's theme music then plays.

4. To begin working with *The Music Studio,* wait for the theme music to finish playing or press the mouse button as it plays.

The main screen appears -- you're now ready to explore the world of *The Music Studio.*
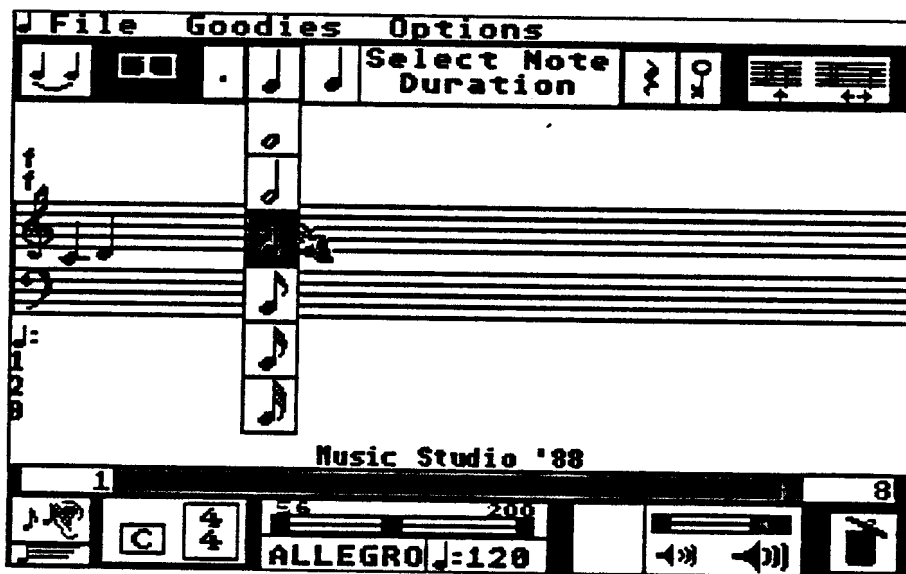
Main Screen Figure - 1

The Music Studio screen provides a musical staff where you create your compositions, and a collection of tools to use in composing, playing and saving your songs.

You compose songs in *The Music Studio*'s **work area.** The work area consists mainly of the grand staff, where you place the notes and rests of your song.

Along the top and bottom borders of the work area are a number of **selectors** -- words or symbols that you use to select *The Music Studio*'s composition, playback and saving tools. Most of the tools are hidden in menus -- lists of tools that pop up when you choose a **selector**.

The Work Area

In the middle of the **work area** is the **grand staff**, made of the **upper staff** or *treble clef* and the **lower staff** or *bass clef*.

To create a song, you select a *note duration* from the **notes menu** and an instrument from the **voice palette**. Then place notes on the staff by clicking on the staff wherever you want a note.

Work Area Figure 2
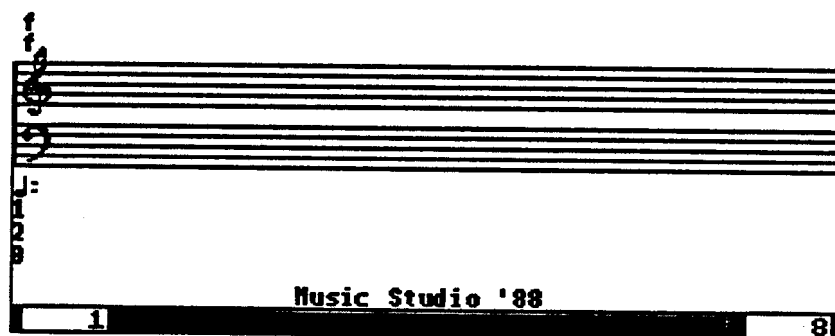
Composition Tools

The majority of the *Music Studio's* selectors are used for composing songs. They use standard notation and should be readily familiar to anyone with some musical background. If you don't know all of them, just follow along on this tour - most of them are covered in the next few chapters.
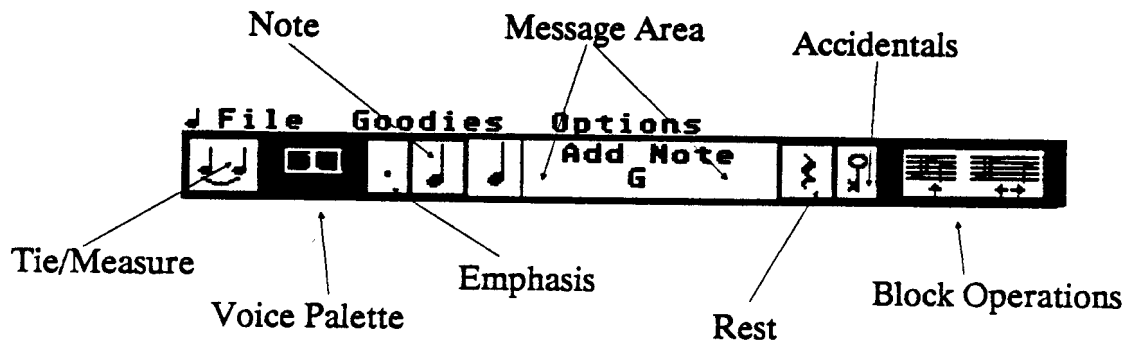
• Tie/Measure

Press here for the tie/measure bar menu. Use it to connect notes or mark measures.

- ## Voice Palette

Press here for the voice palette. The voice palette lets you select from 15 instrumental voices for the notes of your song.

- ## Emphasis

Press here for the emphasis menu to dot, accent or triplet a note.

- ## Note

Press here for the note menu, to select a note of any duration from whole notes to thirty-second notes.

- ## Message Box

Here, *The Music Studio* shows the value of the note or rest selected and describes the tool you are using. As you place notes on the staff, it shows their position.

- ## Rest

Press here for the rest menu, to select musical pauses of any duration from whole rests to thirty-second rests.

- ## Accidentals

Press here for the accidentals menu, to select sharps, flats, or naturals.

- ## Block Operations

Press here for the block operations menu. **Block operations** let you change a section of a composition or (if no block is selected) the entire piece. For example: move, copy, repeat, transpose, change instruments and perform other major changes.

- ## Key Signature

Press here for the key signature menu, to select a key for a whole song or a portion of a song.

- ## Time Signature

Press here for the time signature menu, to select the time signature for a whole song.

- ## Scroll Bar

Drag this bar to move back and forth in your song.

- ## Trash

Click twice to erase a whole song, or erase a highlighted section of a song. To restore a song, click twice again, before performing another operation (when you erase a highlighted block, it cannot be restored).

Playback Tools

Ear

Scroll Bar

Volume Slider

Time Signature

Flying Note

Key Signature

Play Control   Figure 3

Tempo Slider
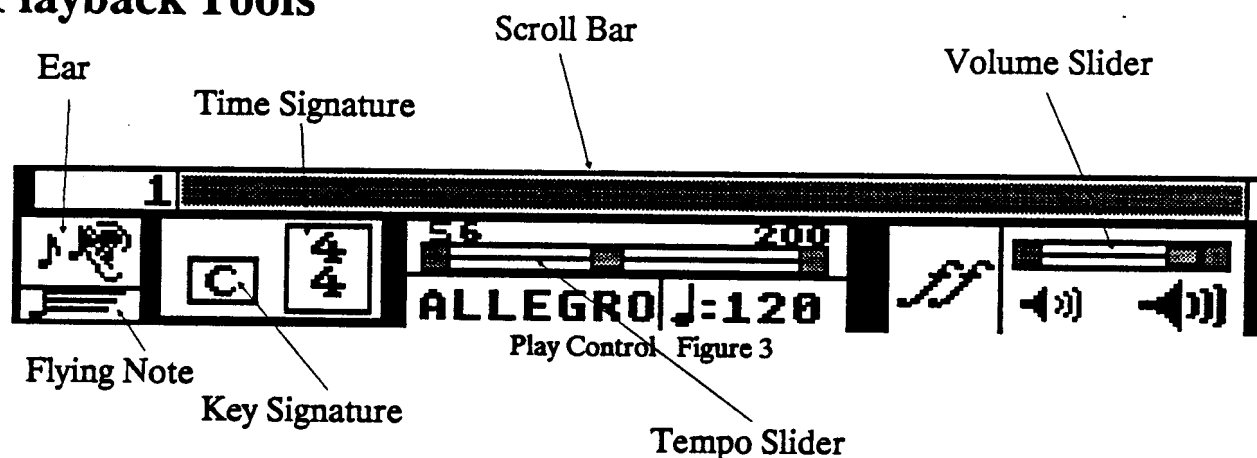
- ## Ear

Click here to play an entire song, or a highlighted section of a song.

- ## Flying Note

Click here to play a song starting with the first column at the left of the screen, scrolling through notes as it plays.

- ## Tempo

Drag the sliding control to set the tempo from slow (56) to fast (200).

- ## Volume

Drag the sliding control to set the volume of playback from soft (pp) to loud (ff).

The Accessories

Across the top of the screen are the accessories, offering you four selections. Each selection has a pop-down window or menu that appears when you point and press.

- ## A Note

Press here to see information about *The Music Studio* program.

- ## File

Press here for the **File** menu, to work with songs on disk, to print a song, to play a set of songs with the Jukebox, or to leave *The Music Studio*.

• Goodies

Press here for the **Goodies** menu. Goodies let you use the music paintbox, design instruments, set **MIDI** channels and preset voices, change the name of a song, and record notes played on a **MIDI** instrument.

• Options

Press here for the **Options** menu, to turn some *Music Studio* features on and off: lyrics, **MIDI** or **ATARI** voices, measure numbers, multi-track voice recording, and more.

Chapter 2

Playing and Painting Songs

Playing a Song From Disk

Before you compose your own songs, you may want to see and hear just how elaborate *Music Studio* compositions can be. The sample songs from the program disk offer some good examples. Make sure the *Music Studio* program disk is in drive before starting.

    1. From the *Music Studio* screen, point to **File** and press the mouse button. The file menu pops down.

    2. Highlight the first selection on the list, **Song Files**, then release the button.

    3. Point to **Load** and click. **Load** is highlighted to indicate your selection.

    4. Move the pointer to the song list. The song list doesn't show all the songs on disk at once. To see more songs, drag the scroll bar on the right edge of the list up and down.
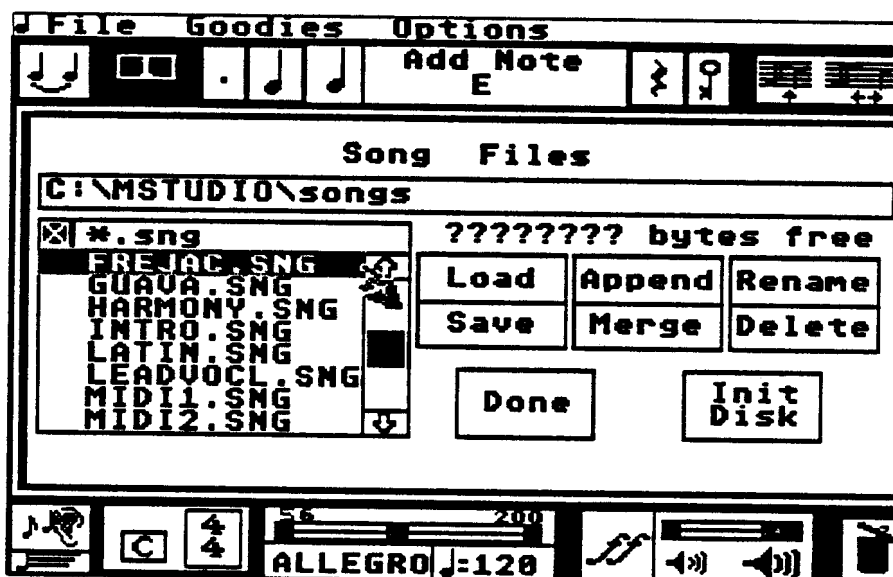
Load Song Menu   Figure - 4

    5. Click on the title of a song want to load; there are classical pieces, rock, jazz, and country.

You'll see a dialog box with the message, **File Loaded.** Click OK and then DONE. Now, the first few measures of the song are displayed on the staff.

    6. To play the song, click on either the **ear** or **flying note** selectors. If you select the **flying note**, the song scrolls as it plays. To stop the song at any time, simply click the mouse button.

Click this Icon to Play the Song
Figure - 5

The Computer Music Jukebox

You can play several songs in a row by selecting the **Jukebox** feature from the song file menu.

1. Point to **Files** at the top of the screen, then press the mouse button. The **Files** menu drops down.

2. Click **Jukebox**. A dialogue box appears, warning you to save your files. Click **OK**. After a few seconds, the jukebox window opens in the work area.
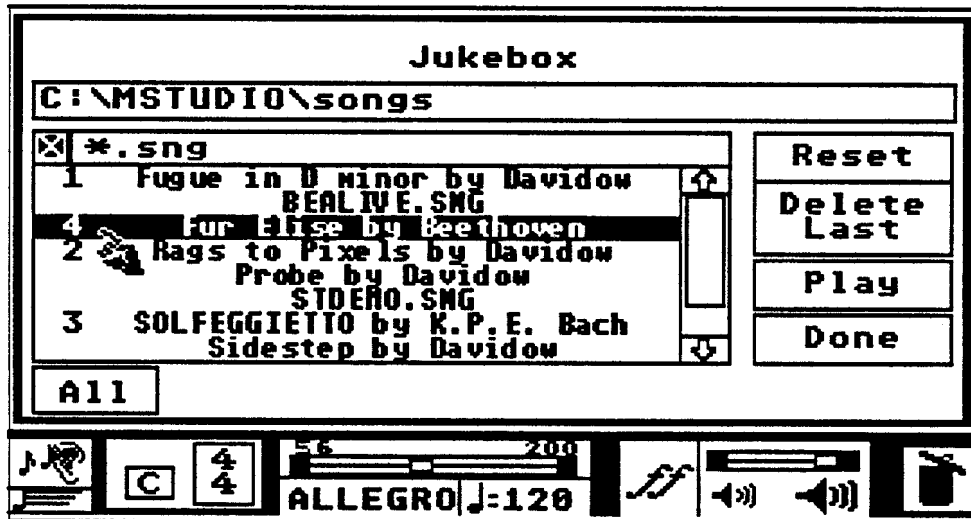
Jukebox Menu Figure - 6

3. Select the first song by pointing and clicking on the name in the **song list**. 1 appears next to the name, indicating your selection. To select a song that doesn't appear at the top of the list, move through the songs by dragging the **scroll bar** at the right. Repeat the process to add other songs to your jukebox play list. To select all the sopngs in one operation click on **All**.

4. Click **Play**. After a few seconds, the first song begins to play. The songs play continuously, first to last, then repeat. To stop playback, click the mouse. The jukebox window appears on screen again.

5. To return to the main screen, click **Done**.

Paint A Song

The music paintbox gives non-musicians a way to create songs with a musical paintbrush and palette. You paint notes on the staff as colored blocks. Select a wider brush to paint longer notes. Select another color to paint with a different instrument.

Once you've painted notes on screen, you can play them back using the **ear** or **flying note** at the lower left of the screen.

1. Point to **Goodies** at the top of the screen. Press the mouse button and the Goodies menu pops down. Point to Paintbox and release the button.

The Paintbox work area appears on the screen. It is simpler than the regular *Music Studio* work area. The grand staff is wider. You have a simplified set of **selectors** to choose from. And instead of notes and voices, you have a **palette** and a set of **brushes**.
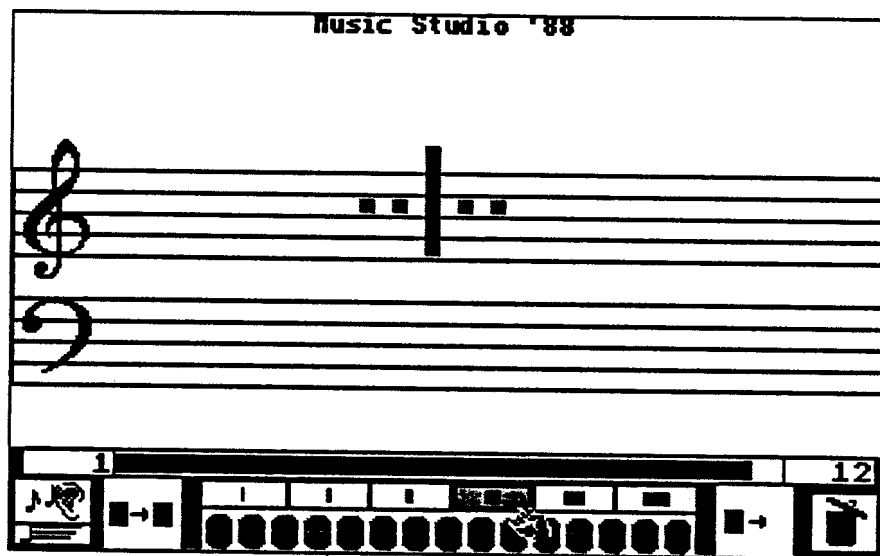
Paintbox Menu   Figure - 7

2. Move the pointer down the staff. It turns into a grey block -- a musical brush that paints the sound of grey (and that's not necessarily a dull sound). As you move the brush down the treble and bass clefs, you hear its sound playing the notes of the scale.

3. Move the brush up and down the staffs a few times to hear the sound.

4. First, try drawing an ascending straight line with the grey brush. Draw a set of blocks going up and to the right, beginning at the bottom of the staff. To paint each block, move the brush to a place on or between the lines of the staff and click.

5. Now, change brushes. Move the pointer to the brush selector and click on the medium-large brush.

6. Change colors by pointing to the palette and clicking on light green.

7. Move to the top of the upper staff and begin drawing a descending line. Place each block as you did with the other line. Only this time, place one green block for every two of the grey blocks you drew (the wider block plays twice as long as the narrower block).

When you finish, you should have two lines that cross.

8. To play your musical picture, click the **ear** or **flying note** at the lower left of the screen.

9. To leave the Paintbox, point to **Music Studio** at the top of the screen and click.

You'll see the musical picture you've painted displayed in the regular *Music Studio* work area. The blocks have been transformed into notes -- and you've written your first song.

Chapter 3

Compose It Yourself

Now, here's a look at the techniques for writing a new song from scratch. You won't actually compose your own song this time; instead you'll use an old standby -- "Frere Jacques." It's a simple song, one you're probably familiar with. And it's a good example to show several of the powers of *Music Studio*.

Note: be sure you have your blank, formatted disk on hand before proceeding. You'll need it to save the song you create.

Place Notes on the Staff

First, make sure the staff is clear. Click the **trash can** twice to remove any notes or songs from the work area.

1. Move the pointer to the grand staff -- the pointer changes to a note. Notes sound as you move up and down the grand staff.

When you first begin the *Music Studio*, the note selected is a quarter note (a solid note with a stem). You can select a new note, with a different *duration*, easily. You'll learn how later in a few moments.

2. Move the pointer exactly between the two staffs in the first column; the note will have a bar through the middle. This bar is called a *leger line*, and the note on the leger line between the staffs is *middle-C*.

3. Click the mouse button to place the middle-C.

Deleting and Changing Notes

Note: If you accidentally place a wrong note, simply move the **note pointer** to the position of the error and click -- the offender is removed.

4. Move the note pointer to the right of the first note and up a step -- just below the bottom line of the upper staff. Click the mouse button to place this D note.

5. Again, move the note pointer to the right of the D and up, positioned on the bottom line of the upper staff. Click again. You have placed an E note.

6. Move the note pointer to the right of the E and down two steps, then click to place another middle-C. The four notes you've placed make up the first four-beat measure of "Frere Jacuqes."

7. Click on the ear to play the notes.

Beginning of Frere Jacuques Figure - 8
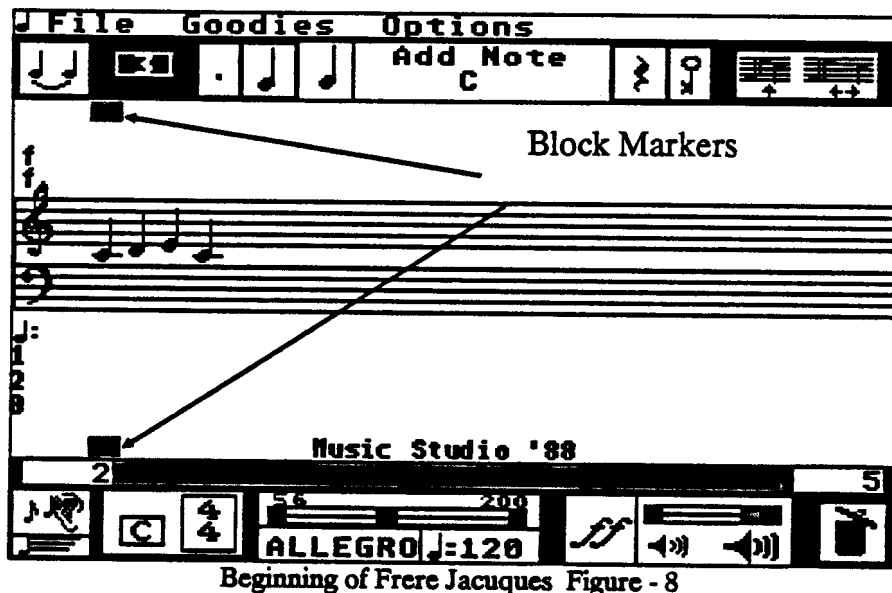
Copying Your Work

The song "Frere Jacques" is made up of four repeated measures -- each measure of the song plays twice. The *Music Studio* gives you a short cut, so you can place each measure, then simply copy it for the repeat.

1. Point to the bottom of the work area, above the scroll bar and below the first note in your song. Boxes appear at the top and bottom of the work area.

2. Click the mouse. A green **block marker** appears in the column.

A Marked Block - Select Copy Block Figure - 9
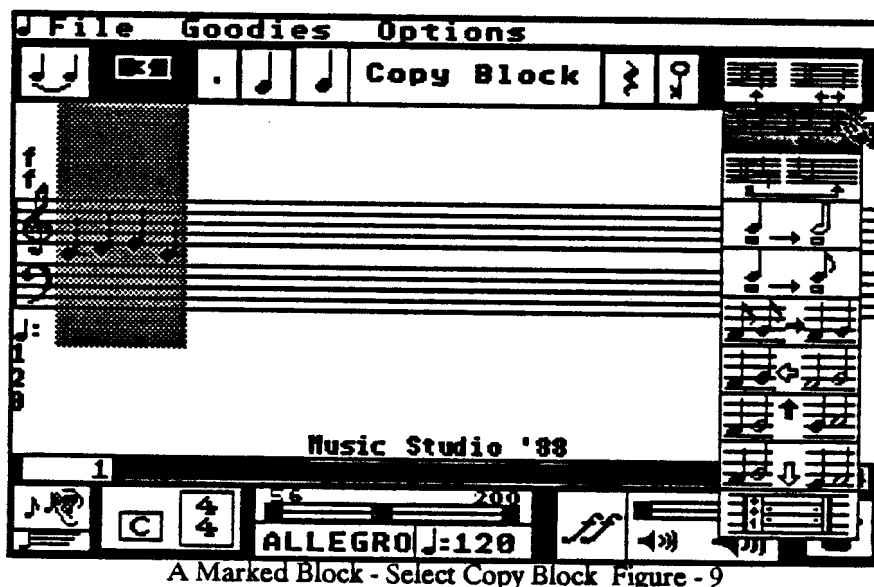
3. Point to the bottom of the work area below the last note in your song. The boxes appear again.

4. Click and the **block marker** expands, covering all four notes of your song.

If you don't get it all the first time, just click at the bottom of the work area once to remove the **block marker**, then repeat the steps.

Block Operations

When you highlight a section of a song, you can perform a **block operations** on that section. To copy the measure, you'll select the **copy block** action.

5. Point to the **block operaiont** selector at the upper right of the screen and press. The block operation menu drops down. See figure 1-8.

6. Still holding the mouse button, point down the menu. As you point to each tool in the **block operation menu**, its name appears in the **message box** to the left of the block action selector.

7. When you're pointing to the **copy block** tool, release the button.

8. Point to the right edge of the **block marker**, then click. The block is copied.

9. To remove the **block marker**, point to the bottom of the work area, above the **scroll bar**. Click once, and the **block marker** disappears.

10. Click the **ear** to hear the two measures of your song. You can also click the **flying** note to scroll the notes as the song plays.

Saving Your Work

As you create a song, it's a good idea to save occasionally. That way, you'll always have a backup in case of a mishap, or in case you make a change that you later decide you don't want to keep.

Note: If you're using a system with a single disk drive, you need to insert a formatted disk in the drive. *Music Studio* runs without the program disk in the drive, so simply replace the program disk with the disk for your song files after the program starts.

1. Point to the **File** selector and press the mouse button.

2. Point to **Song Files** and release the button. The **Song Files** window appears in the work area, with the list of songs on the disk you are using.

3. Click **Save**.

4. The first time you save a file, enter a name for it. Click on the **file name** bar in the upper portion of the window. A cursor appears at the beginning of the line.
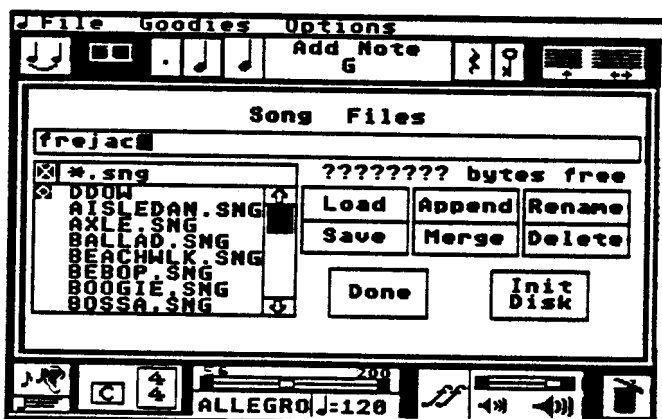
Disk Save/Load Menu
Figure - 10

5. Type **Frere Jacques**, then press **Return** to save the file.

Note: Once you've saved a song, all you need do is click **Save** twice to save it again. The **file name** bar asks if you want to overwrite the file. To do so, click **Y** on the bar. To halt without saving, click anywhere else on the screen.

Changing Notes

The next two measures of "Frere Jacques" consist of three notes; two quarter notes and a half note. The half note plays for twice the *duration* of a quarter note. Like the quarter note, the half note has a stem, but the note itself is open.

Select Half Note   Figure - 11
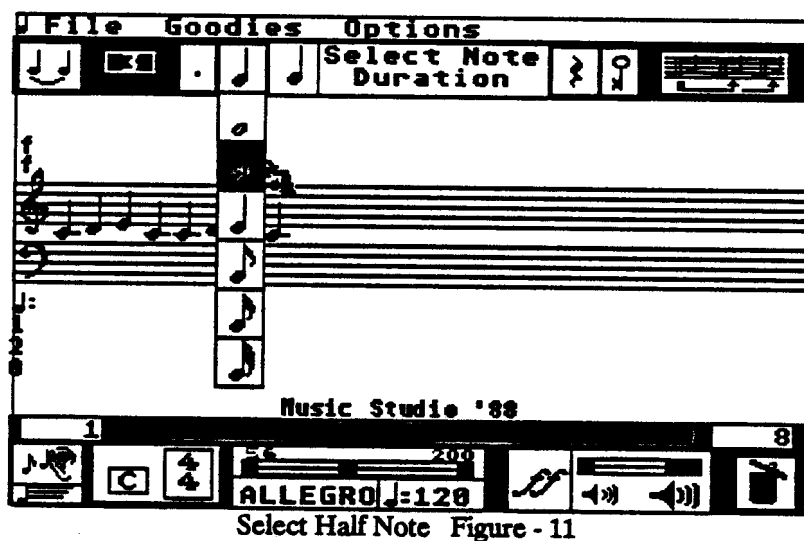
1. Click the **note** selector once to change from the **Copy Block** operation to the **Add Note** operation. The note-The label in the **message box** changes.

2. Place an E and F note following the first two measures, like this:

The next note is the half note, so you need to change the duration of the note.

3. Point to the **note** selector and press. Move the pointer down to the **half note** and release the button. A half note now appears in the **note** selector, and in the **message box** next to it.

4. Point to the staff. The **note pointer** is now a half note. Place a G note immediately after the F notes you just placed. This completes the measure.

5. Copy the three note measure you've just created. Place the **block marker** on the three notes, then use the **copy block** selection to make a copy the measure just after the original.

Be sure to hide the **block marker** when you've finished.

6. Try playing your work so far; you've now completed half the song.

Adding Emphasized Notes

The next two measures begin with a dotted eighth note: the dot indicates a note that plays for 1 1/2 times its normal duration.

1. Point to the note selector and press the mouse button. Highlight the eighth note (the solid note with a single flag) and release the button.

2. Point to the **emphasis** selector (the dot to the left of the **note** selector) and click. The note in the **message box** is dotted, as is the **note pointer.**

3. Move the **note pointer** to the staff. Place a G note following the last note of the previous measure. Move the **note pointer** over two spaces and place another G note.

4. Move the **pointer** to the emphasis selector and click on the dot. The dot is removed from the note in the **message box.**

5. Using the **note** selector, pick a sixteenth (double-flagged) note.

6. Point to the staff between the two G notes you just placed and place an A note. Point past the second G note and place an F.

7. Now, select a quarter note. Point to the staff and place the E and middle-C on the staff as shown.

8. Copy the measure using the **copy block action.**

9. Add the last two measures to the song, as shown:

Scroll Handles

The Last Section of Frere Jacques Figure - 12
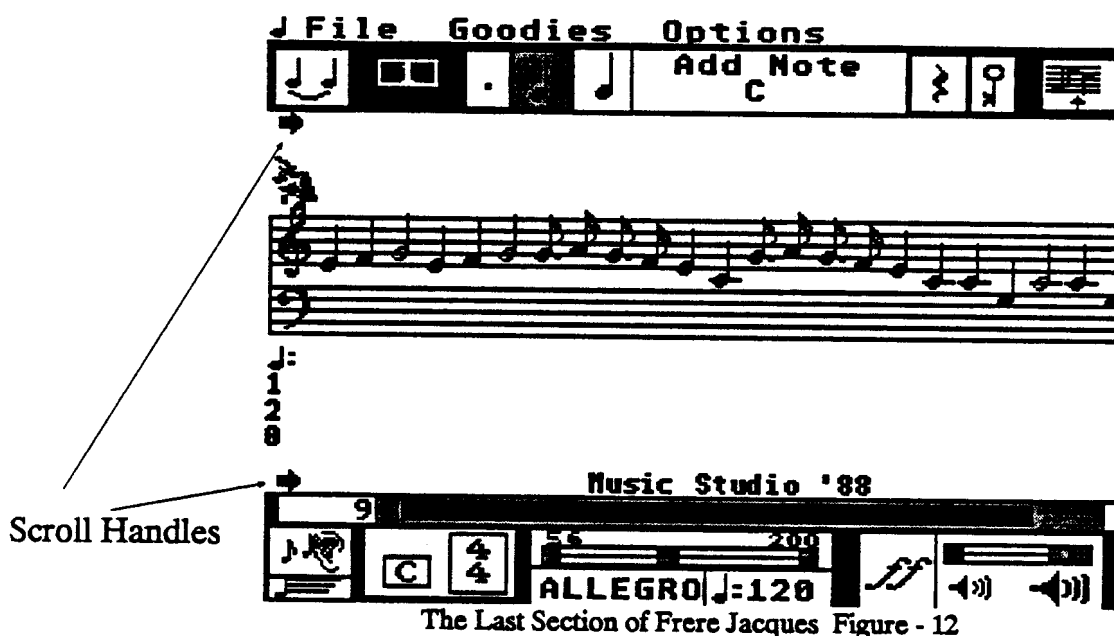
The Scroll Handles

You'll need to use the **scroll handle** at the right of the work area to move to the end of your composition. To do so, move the pointer to the right end of the staff. Blue arrows appear at the top and bottom. Press the mouse and the song scrolls to the end. Release the button and begin adding the notes as shown.

10. Once you've completed your song, play it. Then save the file again.

Changing Voices

With *Music Studio*, you can easily replace one instrument in a song with another. You can change an instrument in a section of a song, or you can change the entire song. That's what you'll do in this example.

1. Move the pointer up to the **block actions** selector. Press and hold the mouse button.

2. Move the pointer down the list of block actions to **replace instrument**: note that the names for the actions appear in the message box as you do. Release the button when **replace instrument** is highlighted.

3. Next, point to the voice selector and press the mouse button. Point to the red box (7) on the **voice palette** (the names of the instruments appear in the **message box** as you move down the list), then release the mouse button.

4. Point to any note on the staff, then click. A prompt appears at the bottom of the work area:

Alters entire song! Sure? (y - yes)

5. Click again to proceed. The color of the notes changes to red, showing that they're now changed to the new instrument.

6. Play the song with the new voice.

Round 'N Round

Music Studio lets you merge a song from disk with the song you're working on. The notes of the two are placed side by side on the staff. For "Frere Jacques" this capability can be used to create a multi-voice *round*.

To do so, first add two *whole-note rests* at the beginning of the song, to create a two-measure delay before the song starts. Then, merge "Frere Jacques" from disk. The merged version of "Frere Jacques" starts first, followed two measures later by the second voice.

1. Point to the **scroll handles** at the left edge of the work area. When the blue arrows appear, press the mouse button until the song scrolls to the beginning. See figure 1-11.

Or, click on the **current column** in the scroll bar at the bottom of the screen. The song jumps immediately to the beginning.

2. Point to the **block operation** selector. Highlight and select **insert block**, then release the button.

3. Point to the beginning of the song, between the clef symbols and the first notes on the staff. Click twice to insert two spaces at the beginning of the song.

4. Point to the rest selector, then press. Highlight the whole-note rest and release the button.

5. Point to the beginning of the song. Place two rest on the staff, one in each of the spaces just added.

Frere Jacque with Whole Rest Figure - 13
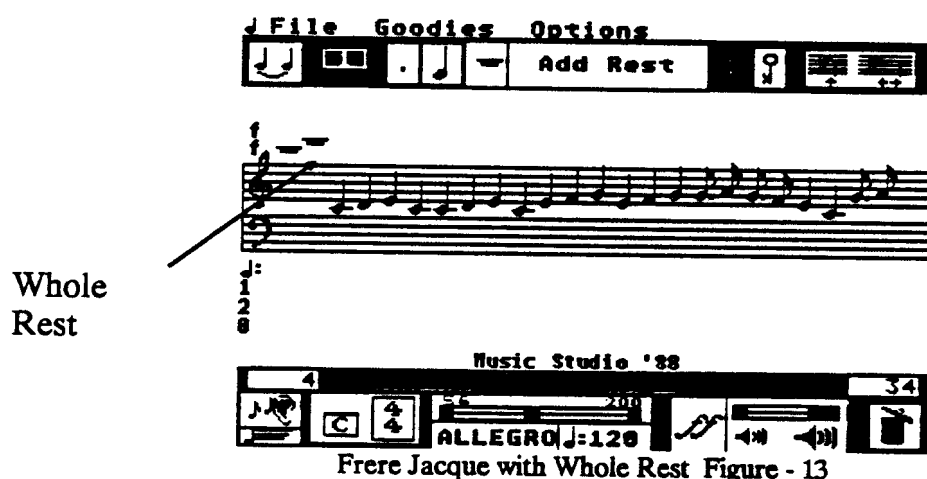
Now, you're ready to merge the song on the screen with the song from disk.

6. Use the file selector to select the Song File window.
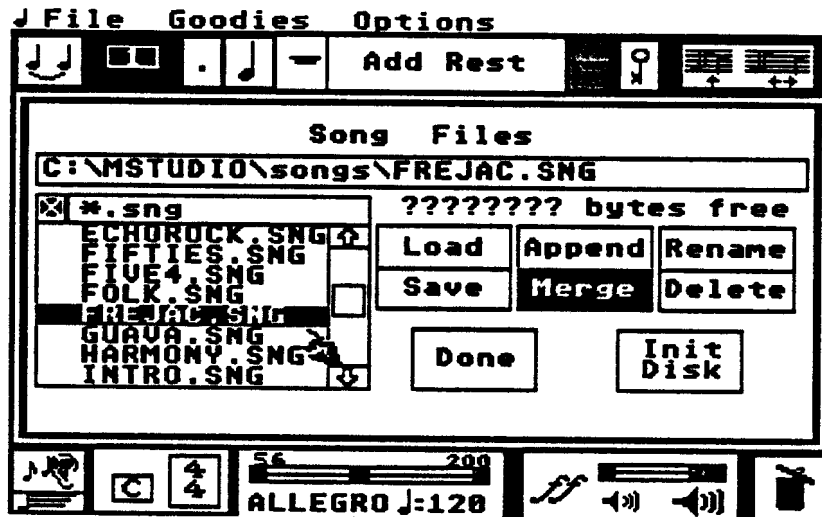
Song Load with "Merge" Selected Figure - 14

7. Click **Merge**, then point to Frere Jacques on the song list and click again. WORKING appears as the song from disk is merged with the song in the work area. When **File merged:Frere Jacque.song** appears, click Done to return.

8.To play the merged song, click on the **ear** or **running note** selectors at the lower left of the screen.

9. Be sure to save the file. You should give this new version of the song a new name (for example "Frere Jacques Round").

Two Verisions of Frere Jacque Merged Figure - 15

10. The time signature of 4/4 has been selected and the **Insert Measure Bar** option is to add measure bars. See figure 1-14.

On Your Own

Add More Voices

You can add as many voices as you wish to the round by repeating these steps:

1. Change the instrument of the last voice merged.

2. Add two empty columns using insert block.

3. Place two whole-note rests in the columns.

4. Merge the original song file ("Frere Jacques").

5. Save the merged song with the new name ("Frere Jacques Round").

Add A Name

You can give your song a name that displays in the work area when you play the song.

1. From the **Goodies** selector, pick **Change Song Title**. A grey text cursor appears at the bottom of the work area.

2. Type the name (up to 30 characters) and press **Return**.

3. Save the file.

Add Lyrics

You can place three verses of lyrics along the bottom of the staff. The lyrics scroll past, a verse at a time, as you play the song with the **flying note icon**.

To add lyrics, pick **Add Lyrics** from **Options** menu. Verse numbers appear below the staff. To add lyrics, simply click under the note where you want to begin, in line with the verse number. A grey text cursor appears, and you can begin typing lyrics. To stop, simply click the mouse button or press **Return**.

Print Your Score

With an Epson or Epson-compatible graphics printer, you can print your composition at any time.

1. Make sure your printer is connected, loaded with paper, and ready to print.

2. Using the **File** selector, pick the **Print** option.

3. When the print window appears in the work area, click **OK** to continue or click **Cancel** to stop.

Chapter 4

New Voices

The *Music Studio* lets you design new instruments by adjusting the basic elements of their sounds. This feature gives *Music Studio* the power of a music synthesizer. Before you begin working with instrument design, it may help to understand the elements of sound.

The Elements of Sound

Three major elements contribute to the sound characteristics of an instrument: harmonics, volume and time. The three are closely interrelated.

Harmonics

Harmonics are the chorus of tones and overtones that combine to make the color of an instrument. Harmonics consist of a fundamental, or base tone, and several overtones. Some sounds have strong fundamental tones and a limited number of regular overtones (for example, a flute). Other sounds are dominated by a spectrum of overtones (a church bell, for example). Still others (a drum) have no distinct overtones: much of the sound consists of noise -- randomly distributed sounds. The harmonics of a sound on the ST version of Music Studio cannot be changed by the user.

Volume and Time

Volume is important as it changes over time, and as those changes affect the interplay of the harmonics. The volume of an instrument may stay steady (sustain) over time, or it may trail off (decay).

The Big Picture

In the science of sound, a graph tracing the volume of an instrument over time is called the sound envelope or ADSR graph. ADSR stands for the four stages of the sound envelope: Attack, Decay, Sustain and Release.

Attack is the increase in volume from no sound to sound - the sound of a note when it first begins to play. Decay is a slight drop-off in sound volume that occurs in some instruments immediately after the attack. Sustain is an even volume level heard after the attack and decay on instruments (e.g., in a wind instrument as long as it is blown into, in a violin as long as it is bowed, on a organ as long as the key is held). Finally, decay is the trailing off of the sound as the note ends.

Here is a simple example of an ADSR graph.
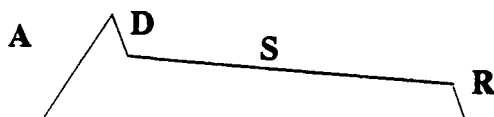
The Piano's ADSR Graph

- **Attack** is sharp as the hammer strikes the string.

- **Decay** is noticeable: the sound loses volume rapidly at first.

- **Sustain** is more like a second, slower decay.

- **Release** is abrupt when the finger leaves the key, unless the sustain pedal is being held. Then, decay continues slowly until the sound becomes inaudible.

The Design Instrument Window

In the *Music Studio*, you create sounds by setting durations and volumes for the phases of the sound envelope. You set the four points on the ADSR curve.

The *Music Studio* lets you create 15 different instruments for your musical palette. You can develop and save a limitless number of palettes -- sound files -- to use for the songs you write.

To create an instrument, use the **Design Instruments** window.

   1. Point to **Goodies** and press the mouse button. The **Goodies** menu drops down.

   2. Select **Design Instrument** and release. The **Design Instrument** window opens in the work area.

   3. Move the pointer to the **Instrument** selector at the top of the screen, then press the mouse button. The instrument menu drops down.

   4. Move the pointer to 1 (Trumpet) and release the mouse button.

The Design Instrument window includes an interactive ADSR graph, where you can view and adjust the ADSR characteristics of each of the four ADSR segments. The window also includes other tools for adjusting and working with sounds.
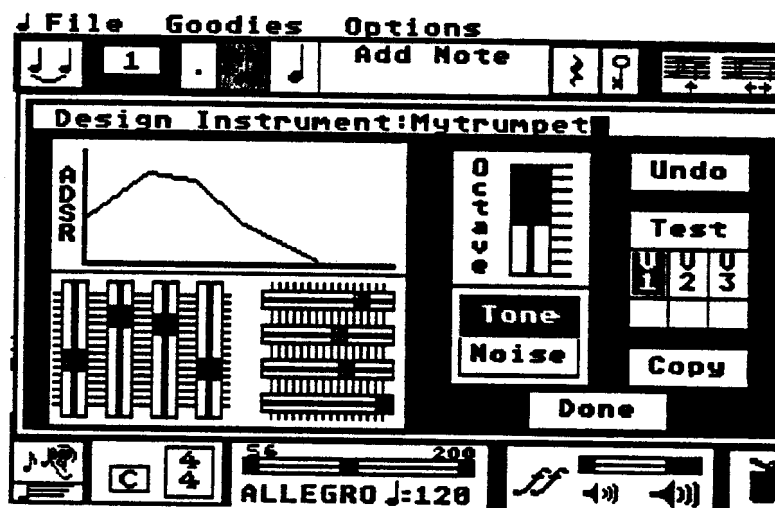
Design Instrument Menu Figure - 16

You may name your new instrument by clicking on **Design Instruments:** and then typing the new name.

An instrument can be made up of a TONE, and, or a NOISE. Selecting TONE gives a more pure sounde. Selecting NOISE works well for special effects such a a drum sound

You may copy and assign your new instrument to another color. Click on **COPY** and then select the new instrument you wish to copy to.

All the changes made in any session with the Design Instrument menu may be canceled by selecting UNDO.

The ADSR Graph shows the ADSR plots the volume of the instrument versus time. Each of the ADSR segments are color coded. Green is ATTACK, red is DECAY, Blue is SUSTAIN, and purple is RELEASE.

Chapter 5

Midi Mastery

Note: In these examples, we refer to the Casio CZ-101 Synthesizer. However, MIDI is a standard interface, and most instructions apply to other MIDI-Compatible instruments.

Playing a song on your MIDI-compatible instrument is quite simple. The use of a MIDI instrument will tremendously improve the versatility and the sound quality of your *Music Studio* program.

In this example, we'll play the round "Frere Jacques," with the first voice on your MIDI instrument and the second voice on the Atari.

Getting Ready...

The first step is to load the song again, if it isn't already in your work area. (If you haven't created this song, see chapter four, "Compose It Yourself.")

> 1. Point to **Files** and press the mouse button. Highlight **Song Files** and release. The **Song Files** window opens in the work area.

> 2. Click **Load**, then highlight the song title "Frere Jacques Round" and click again.

> 3. After the file is loaded, click **Done**.

Setting MIDI Controls

Now, you need to set up the Music Studio so that it's ready to play your song through the MIDI instrument. There are two controls you need to set for this: **MIDI Parameters** and **Turn MIDI Off** (which should **not** be selected) from the **Options** menu.

The **MIDI Parameters** window lets you assign the MIDI's channels and preset sounds to any of the 15 Music Studio voices.

> 1. Point to **Goodies** and press the mouse button. The Goodies menu pops down. Highlight **MIDI Parameters** and release the button. The **MIDI Parameters** window appears in the work area.

The **MIDI Parameters** window gives you 4 controls over the MIDI instrument. Each control has 15 color-coded settings: the settings each correspond to one of the *Music Studio's* 15 color-coded voices.

MIDI
Parameters
Figure - 17
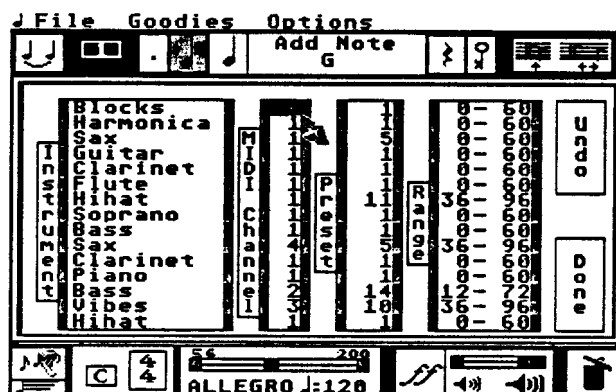
Instrument Click here to type the name of the instrument playing on the MIDI-compatible.

Midi Channel Press here to set the MIDI playback channel used by the 15 voices.

Preset Press here to choose the preset instrument to play for the Music Studio voice.

Range Press here to set the octave range for the instrument selected. On the Casio CZ-230, the standard octave range available is 36-96; other MIDI-compatibles have different octave range capabilities.

2. Point to the first voice setting (grey) in the **MIDI Channel** control. Press the mouse button and move the mouse up or down. The numbers roll through the possible channel assignments: 1-16. Set the number to 2 and release the button. See Figure 1-16.

3. Point to the first voice setting in the **Preset** control. Press the mouse button and move the mouse up or down. The numbers roll through the available presets: 1-128. Set the number to 24 and release.

4. Point to the first voice setting in the **Range** control. Press the mouse button and move the mouse up or down. The numbers roll through available octave ranges. Set the range to 36-96 (the standard range for the CZ-101) and release the mouse button.

5. Point to the **Instrument** name for the first voice and click. Type a new name -- P Organ 2 -- then press **Return.**

6. **Click Done.**

7. Point to Options and press. Select Set MIDI On and release.

Now, you've set the two controls for playing the song through the MIDI.

Playing Through MIDI

You're ready to play the song.

1. First, make sure that your MIDI instrument is on and connected to your computer according to the instructions that came with the adapter cable.

2. Set the MIDI channel on the MIDI instrument to 2. To do so on the Casio CZ-101, switch the instrument on, then press the grey button labelled MIDI CH below the LCD window. The MIDI channel number appears on the LCD window. Use the + and - (VALUE) keys to set the MIDI channel to 2.

3. Check the volume control on your MIDI instrument and you're ready to go.

4. Click on the **ear** or **running note** to play the song. The first voice should play through the MIDI instrument.

Saving MIDI Parameters

When you save a song or a set of sounds, your MIDI settings are saved with them. Both the MIDI Parameters and Assign Instruments controls are retreived, any time you retrieve the song or sound file.

However, each time you begin a *Music Studio* session, you must specifically **Turn MIDI On** from the Options menu to play the MIDI-compatible instrument.

Chapter 6

Studio Techniques

In a multi-track recording studio, you can record the instruments used in a song on separate tracks of the audio tape. Then, by playing back individual tracks, you hear the instruments individually.

Music Studio comes equipped with its own built-in four-track recorder. But unlike a recording studio four-track, the *Music Studio* four-track lets you place any instrument on any track at any time.

This is especially helpful when you want to make changes to a part of a song -- the melody, the bass line, or the voices that play through the MIDI. By assigning these parts to different tracks, you're able to really hear what's going on with them, independently.

Tracks are also a way to **Block Edit** functions on a selected group of insturments. You can, for example, copy the rhythm section or the bass line, by turning all the other tracks off and using the **Copy Block** selection from the Block Edit menu.

Turn On The Tracks

To see how tracks work, let's look at "Frere Jacques Round" again.

    1. Load the song by using **Song Files** from the **Files** selector.

    2. Point to **Options** and press. The **Options** menu drops down.

    3. Holding the mouse button, point to **Use Tracks**, then releas. The four **track controls** appear in the lower portion of the work area.
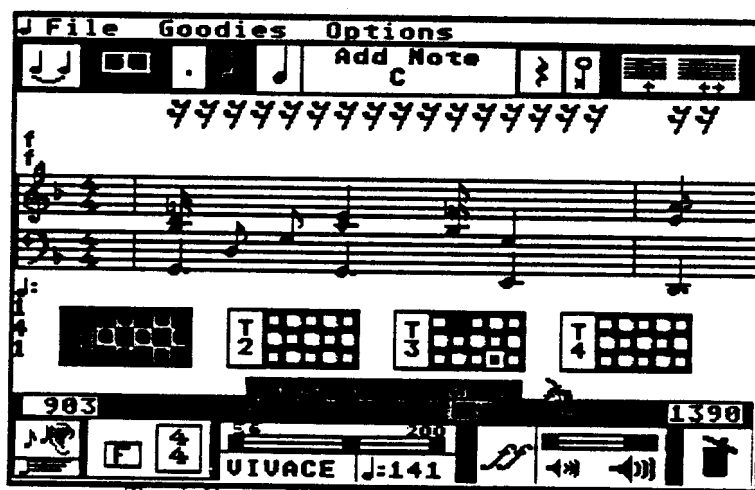
Track Controls with T1 Selected Figure - 18

Notice that track control 1 (T1) is highlighted -- it is on. The others (T2-T4) are not highlighted -- they are off.

Take a look at the colored **voice selector** boxes next to the track control. These represent the voices of the **voice palette**. All voices are assigned to track 1 at first, so the voice selectors for T1 are solid. Other tracks (T1-T4) have no voices assigned to them: their voice selectors are hollow.

Making Tracks

Now, reassign the track for the second voice of the round to track 2.

> 1. Point to the track control 1 (T1).

> 2. Click the selector box for the second voice of the round (it should be **red**, for voice 7). The box becomes hollow.

Notice on the staff that the notes for the second voice have disappeared, replaced with rests. That's because the voice is no longer assigned to a track.

> 3. Click on the **running note** to play the song. The second voice is silent.

> 4. Point to the track control 2 (T2) and click. This turns on track 2; the control is highlighted in grey.

> 5. Click here on the selector box for the second voice (**red**). The box is now filled.
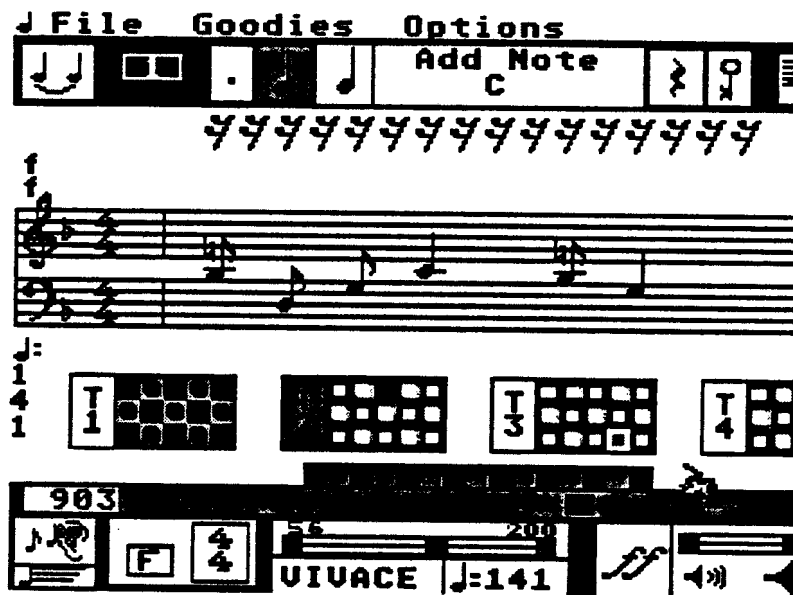
Track Controls, Track Two, (T2), Selected   Figure - 19

> 6. Click on the **running note** again. Now, you see and hear the second voice.

Chapter 7

The Music Studio 88 Reference

REFERENCE

This section covers in a concise and detailed form every aspect of *Music Studio 88*. It's the place to find anything not covered in the the first few chapters of this book. The **Reference** is organized by the way things appear on the screen. The **work area, composition tools, playback tools** and **accessories** are illustrated and explained. Menu selections are listed according to the menu they appear on.

Note: A glossary of terms at the end of this manual is provided to help you understand the musical terminology used in describing the various features of *Music Studio 88.*

The Music Studio 88 Workspace

The *Music Studio 88* workspace consists of:

Main Screen - Ref 1
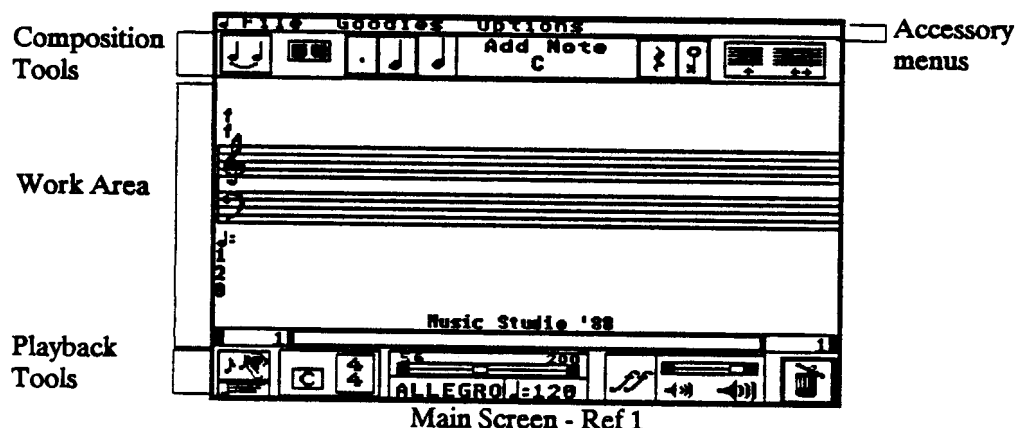
Along the top and bottom borders of the **work area** (see Ref 1) are a number of **selectors** -- words or symbols that you use to select *Music Studio 88*'s **composition tools, playback tools** and **accessory menus.** Most tools are hidden in **menus** -lists of tools that pop onto the screen when you move the pointer to a **selector** and press the mouse button.

Chapter 8

The Work Area
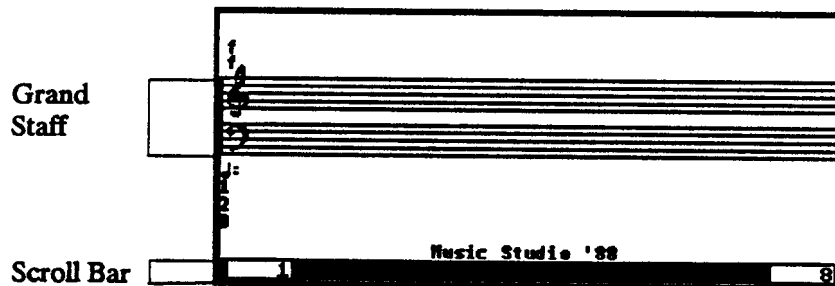
Work Area - Ref 2

The Staffs

In the middle of the **work area** (see Ref 2) is the **grand staff**, made of the **upper staff** or **treble clef** and the **lower staff** or **bass clef**.

The staffs are where you place the notes of your composition. You can place up to three notes in a single column when you're writing solely for the ATARI. If you're using a MIDI-equipped instrument, you can include the three ATARI voices plus as many other voices as your MIDI has channels. You can write all 15 *Music Studio 88* instrument voices for the MIDI, if your MIDI instrument has that many channels or can play that many notes at once.

When you're composing for the Casio CZ-230S, you can place eight notes in a column: five to play through one preset voice on one MIDI channel, and three to play through the three voices of the ATARI.

Scroll Handles

Invisible handles on the left and right ends of the staff let you move back and forth through a song. To use the scroll handles:

- Point to the left or right end of the staff. Point to the left to move toward the beginning of a song. Point to the right to move toward the end. Blue arrows appear above and below the staff.

- Press the mouse button to begin scrolling.

- Release the button to stop scrolling.

Song Scroll Bar

The **song scroll bar** at the bottom of the **work area** lets you move back and forth through the song with ease. You can move anywhere in a song simply by pointing to a position on the **scroll bar** and clicking.

Song Slider

Point to and drag the **song slider** back and forth to move to any position in a song. While dragging a pause on your part will result in the screen being redrawn with the contents of the song at that location.

Current Column/Measure

This **current column** number shows the column at the left of the staff, or the pointer column when the pointer is on the staff. Click here to jump to the beginning of a song.

When you have added **measure bars** with the **Goodies** selector and turned **measure numbers** on with the Options selector, the number displayed here represents the **current measure.**

Last Column/Measure

This **last column number** shows the last column in the song. Click here to jump to the end of a song.

When you have added **measure bars** with the **Goodies** selector and turned **measure numbers** on with the Options selector, the number displayed here represents the **last measure.**

Block Selectors

Block selectors are boxes used for placing the **block marker** for use with **block actions.** The **block selectors** appear when you move the pointer to the top or bottom edge of the **work area.**

To mark a block:

- Point to the top or bottom edge of the **work area,** just above or below the column where you want the **block marker** to begin. The **block selectors** appear at the top and bottom of the column.

- Click the mouse to set the start of the **block marker.** The yellow **block marker** appears in the column you've selected.

- Move to the last column to include in the **marked block** and point to the top or bottom edge of the work area.

- Click to mark the end column. The **block marker** stretches to cover the beginning and end columns and all columns in between. There is no need to mark an end column if your intention is to operate on a single column.

- After using a **block action,** remove the **block marker** by again clicking at the upper or lower edge of the **work area.**

Chapter 9

Composition Tools

Most of *Music Studio 88*'s selectors are used for composing songs.

Note: Many of the composition tools can also be called by function keys. You can use number or arrow keys followed by a **Return** to select from the menus. The function keys are listed with the discussion of each tool.

Message Box

Message box - Ref 3

The **Message Box** is actually two boxes. The small box on the left shows the most recent value of the note or rest selected. The larger box describes the tool you are using, and shows the position of notes as you move them about the staff.

Tie/Measure Bar

(F1)

Tie/Measure Bar - Ref 4

Press here for the **tie/measure bar** menu (see Ref 4), then point and release.

Use ties to connect notes of the same pitch:

• Select **ties**. The pointer turns to a tie when you move it to the staff.

• To place a tie, simply touch the left end of the **tie pointer** to the bottom of the first note you want to connect, then click. The tie will then take on the color of the note you are attempting to tie. If multiple notes of the same pitch are located in the same position (through the use of **Tracks** or **merge**), the color is a clue to which of these notes is actually being tied by your action. You may find that the use of **Tracks** in the **Options** selector is occasionally necessary.

• Touch the right end of the **tie pointer** to the bottom of the second note you want to connect and click again.

• To remove a tie, position the **tie pointer** and repeat the process.

Note: You can't begin or end a **block marker** between two tied notes.

Use measure bars to mark individual measures of a song:

- Select **measure bars.** The pointer turns to a **measure bar** when you move it to the staff.

- Place the measure bar between two columns and click.

- To remove measure bars, place the **measure bar pointer** on a measure bar, then click.

You can also place measure bars throughout a song automatically using **Insert Measure Bars** from the **Goodies** menu.

Note: It is sometimes helpful to avoid placing notes in the same column as a **measure bar** because if **measure numbers** are activated the bar number may obscure notes in the column.

Voice Palette

(F2)

Press here for the **voice palette** (see Ref 5).The **voice palette** lets you pick one of 15 instrumental voices for the notes you place on staff. (The letters A - F can be used in conjunction with F2 to select instruments 10 - 15)

- Point to the **voice** you want to select. The names of the voices appear in the **message box** as you move through the palette.

- Release the button.

Note: You can load and save **voice palettes** using **Sound Files** from the **File** menu. You can also change the sounds of the voices using **Design Instrument** from the **Goodies** menu.

Voice Palette - Ref 5

Emphasis

(F3)

Press here for the **emphasis menu** (see Ref 6). This menu offers tools to dot, accent or triplet the notes you place on the staff.

- Point to the **emphasis** marker you want to use, then release. The emphasis marker appears on the note displayed in the **Message Box**, and is added to the notes you place on the staff.

Emphasis - Ref 6

- To remove **emphasis**, click on the **emphasis** selector.

Dot

The **dot** plays a note for 1 1/2 times its normal value. For example, a dotted half note plays as long as three quarter notes.

Accent

The **accent** makes notes play at a slightly higher volume than other notes. Make sure the **Volume slider** is set a bit below the maximum or you won't hear the accent.

Triplets

Triplets are placed three in a row. Three triplet notes play in the same time as two regular notes. (e.g. Three triplet quarter notes are equivalent to two regular quarter notes.)

Note: A note cannot be both dotted and a triplet.

Note

(F4)

Notes - Ref 7

Press here for the **note** menu (see ref 7), to select a note of any duration from whole notes to thirty-second notes.

To place notes:

- Select a duration from the note menu.

- Point to the staff. The **pointer** turns to a **note.**

- Position the **note pointer,** then click.

To erase a note:

- Position the **note pointer** over the note, then click. The notes can be of different durations, and you can also erase a note with the **rest pointer.**

Note: When the note feature is active pressing a number key (1 - 6) will instantly change the duration of that note. Remember a note cannot be placed or used to erase other notes if it has been made inactive with the **Tracks** feature in the **Options** selector.

Rest

(F5)

Press here for the **rest menu** (see Ref 8), to select musical pauses of any duration from whole rests to thirty-second rests.

To place rests:

- Select a duration from the rest menu.

- Point to the staff. The **pointer** turns to a **rest.**

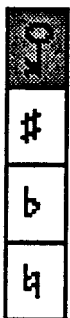- Position the **rest pointer,** then click.

Rests - Ref 8

To erase a rest:

- Position the **rest pointer** over the rest on the staff and click. The rests can be of different durations, and you can erase a rest with the **note pointer.**

Note: When the rest feature is active pressing a number key (1 - 6) will instantly change the duration of that rest.

Accidentals

(F6)

Press here for the **accidentals menu** (see Ref 9), to select diatonic, sharp, flat, or natural notes.

An accidental is a half step change in the pitch of a note. The **Key Signature** determines the natural pitch of each note on the staff, based on the scale for the key selected. Use accidentals to place notes not on the natural scale of the key chosen for the song. **Current Key** returns to the diatonic note -- the natural note of the scale.

Accidentals - Ref 9

- When you select an accidental, it appears on the note displayed in the **Message Box,** and applies to all notes placed.

- To stop placing accidentals with notes, select **Current Key.**

To set the key for a song or a part of a song, use the **Key Signature** selector at the bottom of the screen.

Block Operations

(F7)
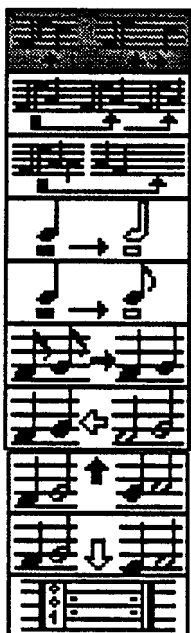
Press here for the **block operations** menu (see Ref 10). **Block actions** let you change part of a composition or the entire piece.

To change a block of a song, you must first highlight it, using the techniques described above in **The Work Area.**

Block Operations - Ref 10

Insert Block

Select **Insert Block** to add blank columns to a composition.

To add a single blank column, simply click on the column that you want to follow the blank.

To add two or more blank columns:

- Place the left end of the highlight on the column that you want to follow the inserted block.

- Highlight a block of columns as wide as the space you want to add.

- Click on the highlighted block.

Copy Block

Use **Copy Block** to repeat a passage anywhere in a song.

To use Copy Block:

- Highlight a block to copy (note that you can't copy an entire song unless you highlight the entire score).

- Point to the column following the place where you want the copy, then click.

If the **Tracks** feature is active only the active notes (as well as all the rests) in a highlighted block will be copied.

Note: You can also use **Repeat** instead of Copy to play a passage or an entire song any number of times. See **Repeat,** below.

Move Block

Use **Move Block** to move a passage to anywhere in a song.

To use Move Block:

- Highlight a block to move.

- Point to the column following the place where you want the move, then click.

Note: If the **Tracks** feature is active only the active notes (as well as all the rests) in a highlighted block will be moved.

Replace Instrument

Changes notes from one voice to another.

To replace an instrument:

- Select the new instrument from the **voice palette.**

- Highlight a block, or change the whole song.

- Click on a note of the color you want to change. If the note is within a highlighted block only notes inside the block are affected; otherwise, the whole song is altered

- If you are changing the whole song, the **Alters entire song** dialog box appears. Selecting **Yes** makes the change while selecting **No** leaves the notes unchanged.

Replace Durations

Use **Replace Durations** to change all notes and rests of one duration to another. You can, for example, change all quarter notes and rests to eighths.

To Replace Durations:

- Select the note duration you want to change to using the **note** selector.

- Highlight a block, or alter all the notes in the song.

- Click on a note of the duration you want to change. If the note is within a highlighted block only notes inside the block are affected; otherwise, the whole song is altered.

- If you are changing the whole song, the **Alters entire song** dialog box appears. Selecting **Yes** makes the change while selecting **No** leaves the notes unchanged.

Lengthen Durations

Use **Lengthen Durations** to double the duration of all notes and rests. Quarter notes become half notes, half notes become whole notes, etc.

To lengthen durations:

- Highlight a block, or lengthen all the notes in the song.

- Click on the highlight if you're lengthening durations within a block. Click anywhere else on the staff if you're changing the whole song.

- If you are changing the whole song, the **Alters entire song** dialog box appears. Selecting **Yes** makes the change while selecting **No** leaves the notes unchanged.

Shorten Durations

Use **Shorten Durations** to cut the duration of all notes and rests in half. Quarter notes become eighth notes, half notes become quarter notes, etc.

To shorten durations:

- Highlight the block, or shorten all notes in the whole song.

- Click on the highlight if you're shortening durations within a block. Click anywhere else on the staff if you're changing the whole song.

- If you are changing the whole song, the **Alters entire song** dialog box appears. Selecting **Yes** makes the change while selecting **No** leaves the notes unchanged.

Transpose Up 1 Step

Use **Transpose Up** to raise all notes and rests one whole note. A becomes B, C-sharp becomes D-sharp, etc.

To transpose up:

- Highlight a block, or transpose all the notes in the song.

- Click on the highlight if you're transposing a block. Click anywhere else on the staff if you're changing the whole song.

- If you are changing the whole song, the **Alters entire song** dialog box appears. Selecting **Yes** makes the change while selecting **No** leaves the notes unchanged.

Note: You can also transpose a song or passage using the **Key Signature** selector.

Transpose Down 1 Step

Use **Transpose Down** to lower all notes and rests one whole note. A becomes G, B-flat becomes A-flat.

To transpose down:

- Highlight a block, or transpose all the notes in the song.

- Click on the highlight if you're shortening durations within a block. Click anywhere else on the staff if you're changing the whole song.

- If you are changing the whole song, the **Alters entire song** dialog box appears. Selecting **Yes** makes the change while selecting **No** leaves the notes unchanged.

Note: You can also transpose a song or passage using the **Key Signature** selector.

Add Repeat

Repeats let you play a passage or an entire song up to 127 times. You can repeat any number of passages within a song and you can add a repeat to a passage within a repeated passage.

To use repeats:

- Highlight a block or repeat the entire song.

- Click on the highlight if you're repeating the block . Click anywhere else on the staff if you're repeating the whole song.

- *Music Studio 88* jumps you to the first part of the block being repeated, where the begin repeat marker is placed.

- Change the number of repeats by moving the mouse up and down. Click to set the number.

To erase repeats:

Be sure **Repeat Block** is selected from the **Block Actions** menu.

- Highlight the repeated block, if any.

- Point to the begin repeat marker and click.

- Pull the mouse down to set the number of repeats to 1. Click again and the repeat is removed.
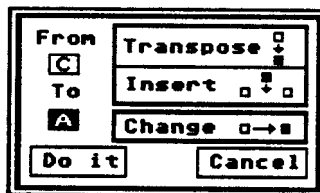
Key Signature

(F8)

Press here to select a key (see Ref 11) for a whole song or a portion of a song.

To change the key for a whole song:

- Press the **key signature** selector, then point to the new key and release. The **new key** window appears in the work area. (see Ref 12)
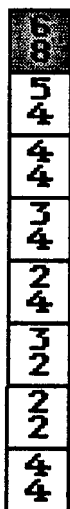
Key Signatures - Ref 11

Key Window - Ref 12

- Click **Transpose** to move the notes of the tune to the scale of the new key or click **Change** to change the key of the song without moving the notes.

- Click **Do it** to complete the key change or **Cancel** to leave the key as it was.

To change the key for a portion of the song:

- Scroll the song so that the first column of the passage to change is at the left of the staff.

- Press the **key signature** selector, then point to the new key and release. The **new key** window appears in the work area.

- Click **Insert** to add the new **key signature** at the column at the left of the staff.

- Click **Transpose** to move the notes of the tune to the scale of the new key. If you don't click transpose, the key of the passage changes, but the notes remain the same.

- Click **Do it** to complete the change or **Cancel** to leave the key as it was.

Time Signature

(F9)

Time Signatures - Ref 13

Press here to select the **time signature** (see Ref 13) for a whole song.

About Time

The time signature is made of two numbers. The upper number represents the beats in a measure, the lower represents the duration beats. For example, 4/4 (the most common time signature) signifies a measure of four beats, with one quarter note per beat. 6/8 means a measure of six beats, with one eighth note per beat.

To change the time signature:

- Press the **time signature** selector, then point to the new time signature and release.

Trash

Trash - Ref 14

- Click **trash** twice (see Ref 14) to erase a whole song or a highlighted block of a song.

- To restore a song, click **trash** twice once more, before you do anything else.

Note: When **Tracks** are active only active notes are erased - **NOT** rests and **NOT** measure bars. If you erase a highlighted block or **Tracks** are active, the music cannot be restored.

Chapter 10

Playback Tools

Playing the Song

Song Play - Ref 15

Ear

• Click here (see Ref 15) to play an entire song, or a highlighted block of a song. Click again anywhere on the screen to stop.

Flying Note

• Click here (see Ref 15) to play a song starting with the first column at the left of the screen or with the first column of a highlighted block. The song scrolls as it plays.

• Click again to stop; the song on screen remains where you stopped it.

Note: If the song is allowed to play until it finishes, *Music Studio 88* returns to the notes where you started.

Tempo

Tempo - Ref 16

To change the tempo for a portion of the song:

• Drag the slider to set the tempo of playback, from slow (56) to fast (200). The musical term for the tempo you've selected appears in the lower left of the tempo box. The **current tempo area** (see Ref 16) on the left edge of the screen is updated.

To insert a tempo for a portion of the song:

• Scroll the song so that the first column of the passage to change is at the left of the staff.

- Press the selector at left in the tempo box and release. Drag the **tempo slider** to set the desired tempo.

Note: The tempos you set are saved with a song file.

Volume

Volume - Ref 17

To change the volume for a portion of the song:

- Drag the sliding control to set the volume of playback, from soft (pp) to loud (ff). The musical term for the volume you've selected appears on the left of the volume box. The **current volume area** (see Ref 17) on the left edge of the screen is updated.

To insert a volume for a portion of the song:

- Scroll the song so that the first column of the passage to change is at the left of the staff.

- Press the Latin term (e.g. ff, pp, etc) in the volume box and release. Drag the **volume slider** to set the desired volume.

Note: The volumes you set are saved with a song file.

Chapter 11

Accessory Menus

Across the top of the screen are the accessories, a set of selectors offering you a variety of tools and options that help you with your work. Each selection in the accessories menu has a pop-down window that appears when you point and press.

Note: Many of the **Accessory menus** can also be called from the keyboard. You can use number or arrow keys followed by a return to select from the menus. The keystrokes are listed with the discussion of each menu.
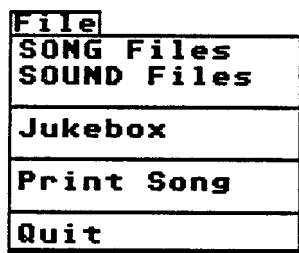
Please Note

```
About  . . .
```
About - Ref 18

● Press here (see Ref 18) for copyright information about *Music Studio 88.*

File Menu

(shift-F)

```
File
SONG Files
SOUND Files

Jukebox

Print Song

Quit
```
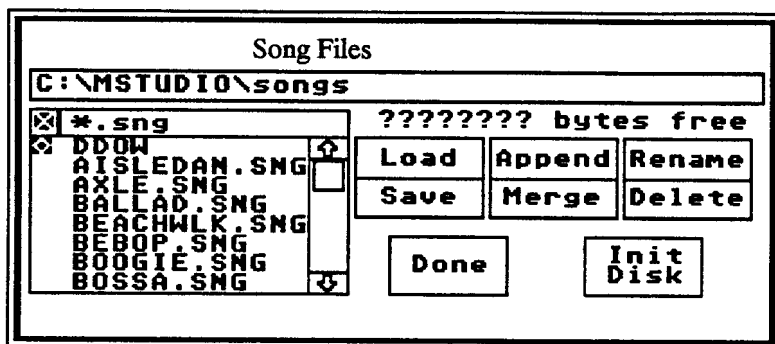File - Ref 19

● Press here for the File menu (see Ref 19).

From the **File** menu, you can select one of several file operations.

Song Files

This selection opens the **Song Files** window (see Ref 20) on the work area, to let you load and save song files.

```
┌─────────────────────────────────────────────────┐
│                 Song Files                        │
│ ┌───────────────────────────────────────────────┐│
│ │C:\MSTUDIO\songs                               ││
│ └───────────────────────────────────────────────┘│
│ ⊠ *.sng          ??????? bytes free             │
│ ◌ DDOW        ⇧  ┌──────┬──────┬──────┐         │
│   AISLEDAN.SNG   │ Load │Append│Rename│         │
│   AXLE.SNG       ├──────┼──────┼──────┤         │
│   BALLAD.SNG     │ Save │Merge │Delete│         │
│   BEACHWLK.SNG   └──────┴──────┴──────┘         │
│   BEBOP.SNG      ┌────────┐   ┌──────┐          │
│   BOOGIE.SNG     │  Done  │   │ Init │          │
│   BOSSA.SNG   ⇩  └────────┘   │ Disk │          │
│                               └──────┘          │
└─────────────────────────────────────────────────┘
```

Song Menu - Ref 20

File name bar. Shows the song currently loaded, and prompts you when files are loaded or saved. Click here to type a file name when saving a file or to change disks.   **Song List.** Lists all the songs on the current disk. Drag the file slider at the right of the list to scroll through songs.

File Actions. Let you select an action to perform on a song file.

Load

To load a song file:

- Click on **Load. Load** is highlighted.

- Click on the name of the song you want to load. If the current song has been modified but not saved, the **warning dialog box** appears. Click **Cancel** and save your song first if you have not already done so. Otherwise, click **OK.**The BEE cursor appears during the load, then the **message** dialog box appears.

Save

To save a new song or rename a song:

- Click on **Save.**

- To name the song file, click in the **file name bar,** type the name, and press *Return.*

To save a song already on file:

- Click **Save** twice. The **Replace existing file** dialog box appears. Click **Yes** to save. Click **No** to cancel without saving.

Keep in mind that you should **NEVER** save songs to the *Music Studio 88* program disk.

Merge

Merges a song from disk with the song in the work area. Merge overlays the notes of the two songs, so they must be synchronized by time and key in order for the merge to work as expected.

To merge songs:

- Click **Merge.**

- Click on the name of the song you want to merge. If the current song has been modified but not saved, the **warning** dialog box appears. Click **Cancel** and save your song first if you have not already done so. Otherwise, click **OK.** The BEE cursor appears during the merge, then the **message** dialog box appears.

Append

Add a song from disk to the end of the song in the work area.

To append songs:

- Click **Append.**

- Click on the name of the song you want to append. If the current song has been modified but not saved, the **warning** dialog box appears. Click **Cancel** and save your song first if you have not already done so. Otherwise, click **OK.** The BEE cursor appears during the append, then the **message** dialog box appears.

Rename

Lets you change the name of any song on the disk.

- Click **Rename.**

- Click the name of the song you wish to rename in the song list. The prompt **New name:** appears in the **file name bar.**

- Type the new name and press **Return.** If you decide not to rename the song, simply press **Return** without typing a name.

Delete

Deletes a song file from disk.

- Click **Delete.**The **Really delete** dialog box appears . Click **Yes** to delete the file. Click **No** to stop without deleting.

Init Disk

Formats a 3.5" disk

- If you are not working from a 3.5" disk click on the **file name bar** and type in the letter of the disk to format (e.g. A:).

- Click **Init Disk.** The **Really format** dialog box appears. Click **Yes** to continue. Click **No** to stop without formatting.

- The **double sided** dialog box appears. Click **Yes** to format double-sided (Make sure you have a double-sided drive). Click **No** to format single-sided disks. At this point formatting will begin.

Note: You cannot format the hard disk from *Music Studio 88.*

Done

Click here to leave the song files window and return to the regular *Music Studio 88* **work area.**

???????? bytes free

Click here to determine how many free bytes are available on the current work disk.

Sound Files

This selection opens the **Sound Files** window on the **work area.**

Using this window, you can save and load sound files. This lets you save the instrument voices you create in the **Design Instrument window** from **Goodies.** This is useful when you create special voices that you'd like to try with more than one song. See the next section on **Goodies** for more on creating instruments.

The **Sound Files** window shares many features of the **Song Files window (see Ref 21).**
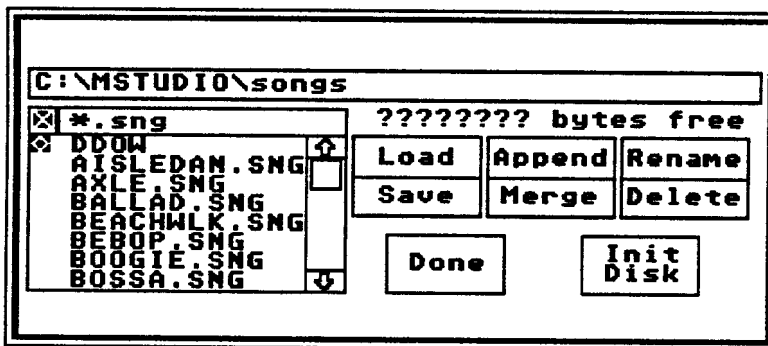
Sound Menu - Ref 21

File name bar.   Shows the sound file rently loaded and prompts you when files are loaded or saved. Click here to type a file name when saving a file or changing disks.

Sound list. Lists all sound files on the current disk. Drag the file slider at the right of the list to scroll through songs.

File actions. Let you select an action to perform on a sound file.

Load

To load a sound file:

• Click on **Load. Load** is highlighted.

• Click on the name of the sound file you want to load. If the current sound file has been modified but not saved, the **warning** dialog box appears. Click **Cancel** and save your sound file first if you have not already done so. Otherwise, click **OK.** The BEE cursor appears during the load, then the **message** dialog box appears.

Save

To save a new sound file or rename a file:

• Click on **Save.**

• To name the sound file, click in the **file name bar,** type the name, and press *Return.*

To save a sound already on file:

- Click **Save** twice. The **Replace exisiting file** dialog box appears. Click **Yes** to save. Click **No** to cancel without saving.

Keep in mind that you should **NEVER** save sounds to the *Music Studio 88* program disk.

Rename

Lets you change the name of any sound file on the disk.

- Click **Rename.**

- Click the name of the sound file you wish to rename in the sound list. The prompt **New name:** appears in the **file name bar.**

- Type the new name **and press Return.** If you decide not to rename the sound, simply press **Return** without typing a name.

Delete

Deletes a sound file from disk.

- Click **Delete.**The **Really delete** dialog box appears . Click **Yes** to delete the file. Click **No** to stop without deleting.

Init Disk

Formats a 3.5" disk

- If you are not working from a 3.5" disk click on the **file name** bar and type in the letter of the disk to format (e.g. A:).

- Click **Init Disk.** The **Really format** dialog box will appear . Click **Yes** to continue. Click **No** to stop without formatting.

- The **double sided** dialog box appears. Click **Yes** to format double-sided (Make sure you have a double-sided drive). Click **No** to format single-sided disks. At this point formatting will begin.

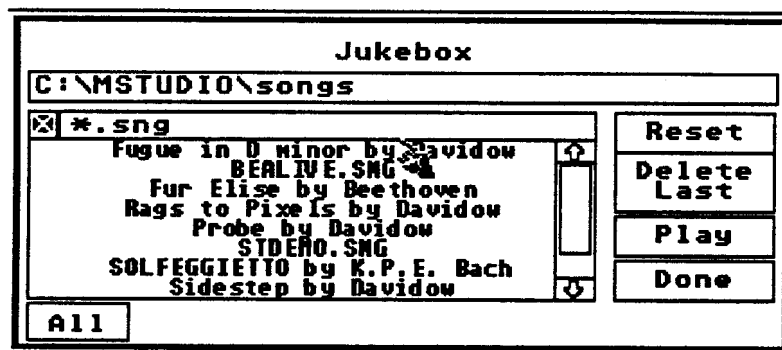Note: You cannot format the hard disk from *Music Studio 88.*

Done

Click here to leave the **Sound Files** window and return to the regular *Music Studio 88* work **area.**

Jukebox

Select **Jukebox** to play back your own compositions -- or *Music Studio 88*'s pre-recorded compositions -- repeatedly.

- Select **Jukebox** from the **File** menu. The **warning** dialog box will appear. Click **Cancel** and save your song first if you have not already done so. Otherwise, click **OK.** The **Jukebox** window (see Ref 22) opens on the **Work Area.**

```
┌─────────────────────────────────────────────────┐
│                    Jukebox                        │
│  C:\MSTUDIO\songs                                 │
│  ┌───────────────────────────────┐  ┌──────────┐ │
│  │⊠ *.sng                        │  │  Reset   │ │
│  │   Fugue in D minor by Davidow⬆│  ├──────────┤ │
│  │        BEALIVE.SNG            │  │  Delete  │ │
│  │    Fur Elise by Beethoven     │  │   Last   │ │
│  │   Rags to Pixels by Davidow   │  ├──────────┤ │
│  │       Probe by Davidow        │  │  Play    │ │
│  │         STDENO.SNG            │  ├──────────┤ │
│  │  SOLFEGGIETTO by K.P.E. Bach  │  │  Done    │ │
│  │      Sidestep by Davidow ⬇    │  └──────────┘ │
│  │ ┌─────┐                       │               │
│  │ │ All │                       │               │
│  └─────────────────────────────────┘             │
└─────────────────────────────────────────────────┘
```

Jukebox Menu - Ref 22

Song list Click on the song titles to add songs to your jukebox play list. A number appears to the left of the title for each song added to the list. Drag the scroll bar to the right of the list to move through the songs.

Reset Click to remove all songs from your play list.

Delete Last Click to remove your most recent addition to the play list. Repeated clicks remove additional songs from the list.

All Click here to select all the songs in one operation.

Play Click here to play the songs on your list.

Done Click here to close the Jukebox window and return to the **work area.**

Print Song

If you have an Epson-compatible printer, you can print your songs -- words and music -- using this selection from the file menu.

- Before you print, make sure your printer is on and loaded with paper.

- Select **Print Song** from the **File** menu. The **Printer Ready** dialog box appears in the work area. Check the printer, then click **Ready.** Click **Cancel** to stop without printing.

- Press the left-button to abort printing while in progress.

Quit

Select to leave the *Music Studio 88* program. You are reminded to save any modified work before quitting. If you have done so or do not care to, click **OK;** if not, click **Cancel.**

Goodies Menu

(shift-G)

```
┌──────────────────────┐
│Goodies               │
│Paintbox              │
│Design Instrument     │
│MIDI Parameters       │
│Change Song Title     │
│Activate MIDI INPUT   │
│Insert Measure Bars   │
└──────────────────────┘
```
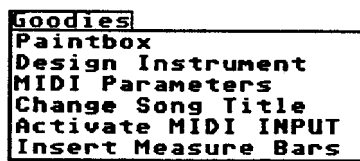
Goodies - Ref 23

The **Goodies** menu (See Ref 23) gives you access to a number of the auxiliary composition tools of *Music Studio 88.*

Paintbox

Paintbox provides a way for the non-musician to begin creating original music, by painting sounds from a musical palette on the screen. The **Paintbox** is very intuitive -- and very easy to use.

Design Instrument

Click here for the **Design Instrument** window. This window (see Ref 24) includes a graphic representation of the instrument's ADSR characteristics, and provides a number of controls for adjusting the properties of that instrument.
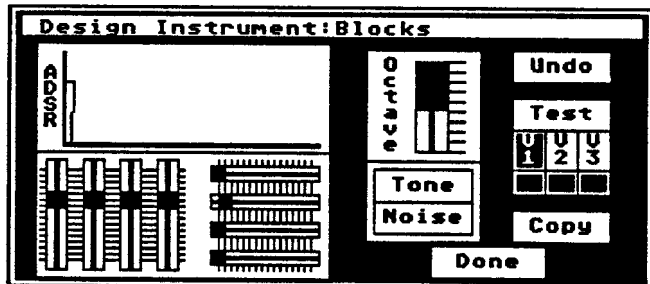
Design Instrument Window - Ref 24

Instrument Name

• Click here to change the name

• Type a new name and press **Return**. If you decide not to rename the instrument, simply press **Return** without typing a name.

ADSR Graph

This displays the current ADSR (Attack, Decay, Sustain, and Release) volume and duration.

ADSR Volume & Duration Control Sliders

Select this feature, then move the vertical sliders to adjust the volume of the ADSR and the horizontal sliders to adjust the duration.

Test

To Test a voice as you're working on it:

• Click **Test**. *Music Studio 88* begins playing a continuous scale, starting with the lowest note and playing to the top, then back down again.

• Click again to stop the test.

Note: If the voice you're working on is used by a song in the work area, you can click on the **ear** or **flying note** selectors at the lower left of the screen to hear how your changes affect the song. Other parameters (e.g. ADSR) may be modified while the music is playing.

Voice Selector

You can test up to three voices at one time, represented by the voice ON/OFF switches V1, V2, and V3.

- Turn voices on and off by clicking the mouse over V1, V2, or V3.

You can assign a different instrument to each voice or use the same instrument for all three voices. Select your instruments from the **voice palette**, then select the box under each voice to switch on the instruments.

Scales Speed

- Select the duration value of the note using the **note** selector.

Scales Volume

- Adjust the volume of the scales with the **volume slider control.**

Octave Range Indicator

- Slide the red block up and down to select a five-octave range for each sound.

Tone ON/OFF Switch

- Add or subtract musical tone by clicking here.

Noise ON/OFF Switch

- Add or subtract noise by clicking here.

Copying Voices

Use the **voice selector** to copy the sound of one instrument to another position in the **voice palette**.

This is useful when you want to have several variations on the same sound. For example, you might want to have two piano sounds, one with an abrupt decay (no sustain pedal) and another with a longer decay (with sustain pedal).

To copy a voice:

- Point to the **voice palette** and press to select the instrument to copy from

- Select **Copy.**

- Select the voice you want to replace and release the button.

- Click on the color for the voice that you want to copy. The ADSR graph and other settings for the copied voice replace the original settings.

Undo

To Undo changes to a voice:

● Click **Undo.**

Note: When you click **Done** or select a new instrument from the **Voice Palette**, you can no longer undo changes made to a previously selected instrument's voice.

Done

To leave the Design Instrument window:

● Click **Done.**

Any changes you've made to voices become permanent -- at least for the current session. However, to save the voices permanently, or to load the voices you were using before making changes, use **Sound Files.**

Saving Sounds in Files

Once you've created a new set of instruments for the **voice palette,** you can use them in any song you create. To do so, select **Sound Files** using the **File** selector.

To create a sound file, and to retrieve sound files for use with your musical compositions, select **Sound Files** from the **File** menu. You can also retrieve a sound file and make further modification on it in the **Design Instruments** window.

The MIDI Parameters Window
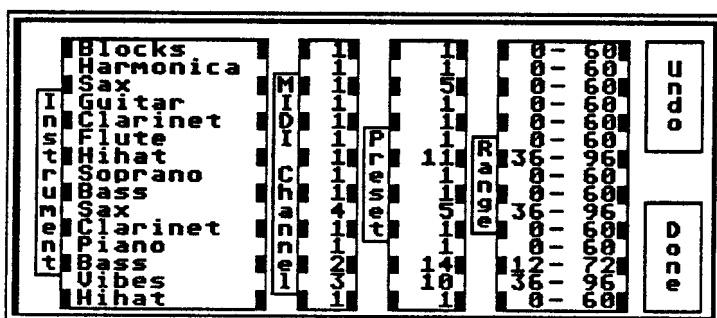
MIDI Parameters Window - Ref 25

MIDI **Parameters** (see Ref 25) let you set four controls for activating the MIDI interface: the **Instrument name,** the MIDI Channel, the MIDI **Preset,** and the octave **Range.**

The MIDI interface lets you play songs composed with *Music Studio 88* on your MIDI-compatible instrument. For a full discussion of using the MIDI interface, see "MIDI Mastery."

Instrument

The **Instrument** control lets you name the instrument you're playing on the **MIDI.** This is a useful reminder when you're working with the **MIDI Parameters** window.

To name the instrument:

● Point to the voice name you want to replace in the **Instrument** control.

● Click on the name. A text cursor appears.

- Type the new name (up to 9 characters) and press **Return.** Press **Return** without typing to leave the name as it was.

MIDI Channel

Use the **MIDI Channel** control to assign a *Music Studio 88* voice to one of the 16 available **MIDI** channels. To do so:

- Determine which **MIDI** channel you want to use for a particular voice.

- Point to the voice you want to assign in the **MIDI Channel control.**

- Press the mouse button and move the mouse up and down to change the channel number. You can select channel numbers as high as 16.

- Release the mouse button to set the number.

Preset

MIDI instruments have preset numbers for specific voices. The Casio CZ-230S, for example, has 100 different instrumental sounds to choose from, numbered 00 to 99.

The **Preset** control lets you select the number of a **MIDI** instrument preset to assign to a particular *Music Studio 88* voice.

To select a preset:

- Determine the **MIDI** preset number that you want to assign to the *Music Studio 88* voice.

- Point to the voice you want to assign in the **MIDI Preset** control.

- Press the mouse button and move the mouse up or down to change the preset number. You can select preset numbers as high as 128.

- Release the mouse button to set the preset.

Range

Range sets the octave range for the instrument selected.

Music Studio 88 plays a four-octave range: from C two octaves below middle-C, to C two octaves above middle-C. The **MIDI Range** setting that corresponds directly to this is 36-96.

The Casio CZ-230 has a four-octave range, so its range should be set to 36-96. Other range settings cause the upper or lower octaves to transpose on certain notes.

Some **MIDI** instruments can play a broader range of octaves. Using the **Range,** you can set an instrument to play above or below *Music Studio 88*'s standard range. For example, set 0-60 or 12-72 to play deeper bass notes. Set 60-120 to play the highest treble notes.

To set the range:

- Point to the voice that you want to assign to a new octave range and press the mouse button.

- Move the mouse up and down to adjust the octave range.

- Release the button to set the octave range.

Undo

- Click **Undo** if you make changes to **MIDI** parameters that you don't want to keep.

Done

- Click **Done** when you're finished making changes to the **MIDI parameters.**

Saving MIDI Parameters

When you set **MIDI** parameters, you can save them by saving the song that they're associated with or by saving them in a **Sound file** as described above in **Saving Sounds in Files.**

Change Song Title

This **Goodies** menu selection lets you add a title to your song -- a title that replaces **Music Studio '88** at the bottom of the work area. This title can be different than the name you give the song file.

The song title is saved with the song file. Whenever you load the song into *Music Studio 88*, the title appears at the bottom of the work area.

To give a song a title:

- Choose **Change Song Title** from the **Goodies** menu. A prompt and text cursor appear at the bottom of the work area.

- Type your title, then press **Return.** Your title can be up to 30 characters long.

Activate MIDI Input

The **MIDI Input** selection records a song as you play your **MIDI** instrument. To achieve the best possible results, you may need to try a few times, and you should keep a few things in mind:

- **MIDI Input** will record both the melody and chords of a song. However, you may get better results at first if you don't try to do both together.

- The **tempo** setting affects the sampling rate of the recorder. If you set too fast or too slow a speed, you may get unusual results; for example, notes that you play individually blend together.

- The **note** selection affects the resolution of **MIDI Input.** Selecting thirty-second notes may result in a lot of triplets, dotted notes, etc. Selecting whole notes may compress a complex song into a few indistinct measures.

- In general, it's a good idea to select a high **tempo** (e.g., 200) and **note** (e.g., thirty-second notes).

- Play very evenly -- use a metronome or rhythm machine for best results.

To use MIDI Input:

- Select **Activate MIDI Input** from the **Goodies**. The **MIDI Input** dialog box appears on the screen.

- Play the notes you want to record.

- Click the mouse button to stop recording.

You can now see your results on the staff and hear them by clicking the **ear** or **flying note**.

If there are notes on the staff when you select **MIDI Input**, *Music Studio 88* appends your input, placing it after those notes.

Insert Measure Bars

Insert Measure Bars automatically adds measure bars throughout the song you're working on, based on the current time signature.

Note: You can also place individual measure bars using the **Measure Bar** selection from the **Ties/Measure Bars** menu.

Options

(shift-O)
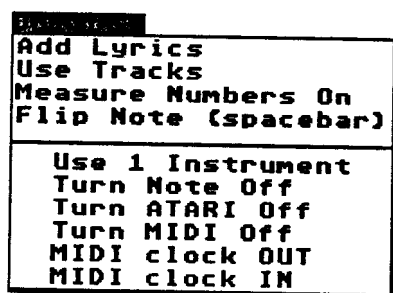
```
Add Lyrics
Use Tracks
Measure Numbers On
Flip Note (spacebar)

 Use 1 Instrument
 Turn Note Off
 Turn ATARI Off
 Turn MIDI Off
 MIDI clock OUT
 MIDI clock IN
```
Options - Ref 26

Press here (see Ref 26) for the **Options** menu, to turn some special features on and off: lyrics, multi-track voice recording, measure numbers, note flipping, **MIDI** or **ATARI** voices, and more. Some **Options** provide two different menu selections, depending on whether the feature is on or off, while others are active when a check mark is present.

Add/Remove Lyrics

You can add up to three verses of lyrics to a song using this feature. Lyrics are placed in the lower portion of the work area, below the bass clef. Your lyrics are saved when you save the song.

Once you add lyrics, the **Options** menu changes to list **Remove Lyrics.** Selecting this item deletes lyrics from the screen. However, they remain on the disk file if you've saved the song.

To add lyrics:

```
1
2
3
```
Lyrics - Ref 27

- Select **Add Lyrics** from the **Options** menu. Three verse numbers appear at the lower left of the work area (see Ref 27).

To re-assign voices:

- Point to the **track control** (T1-T4) where the voice is currently assigned.

- Click on the **selector box** for the voice you want to reassign. The solid box becomes hollow.

- Point to the **track control** where you want to assign the voice.

- Click on the **selector box** for the voice you are reassigning. The hollow box becomes solid.

Turning tracks on/off:

Tracks are on when the track number (T1-T4) has a background, and off when its background is white. To turn a track on or off:

- Click on the track number. Each click toggles the track's setting -- **on**, then **off**, then **on** again.

By turning the **tracks** on, you select the voices assigned to them to appear on the staff and to play when you play the song.

By turning the **tracks** off, you hide voices assigned to them from the staff, and you turn off their sound when you play the song.

When you copy, move, or erase a block with some tracks turned off, only the voices assigned to the tracks that are turned on are affected.

Measure Numbers Off/On

Use this selection to show the measure numbers (first use the **Insert Measure Bars** selection from the **Goodies** menu). When you set **Measure Numbers On**, the numbers appear at the end of the measure, just above and before the measure bar. And, the **current column/end column** indicators next to the song scroll bar change to show the **current measure/end measure.**

Flip Note (spacebar)

This control inverts the stem on the note pointer and on any notes you place with the pointer. This is useful when you are placing any note with a stem (all but the whole note) high on the bass or treble clefs: inverted stems are standard musical notation for these positions.

To flip the note:

- Select a note with a stem from the **notes** menu.

- From the **Options** menu, select **Flip Note**, or press the **spacebar.**

- To flip the note back, select **Flip Note** or press the **spacebar** again.

Toggle Options

The following options are all On/Off options which can be selected without the **Options** Menu disappearing. A check mark will appear next to the option to indicate whether or not it is selected. Clicking the mouse a second time somewhere off the **Options** Menu will remove the menu.

Use 1 Instrument

Use this feature when you want to play your song without any instrumentation. It lets you play your song as though all the notes were written in the same voice. To do so:

- Using the **voice palette**, select the instrument that you want to use to play your song.

- From the **Options** menu, select **Use 1 Instrument**.

- Click on the **ear** or **flying** note selectors to play your song.

- To return to normal play, cancel **Use 1 Instrument** on the **Options** menu.

Turn Note Off

Use this selection to turn the sound of the note pointer (used for placing notes on the staff) on and off. Select once to turn the sound off, select again to turn it on.

Turn ATARI Off

Turn MIDI Off

These controls select the **ATARI**, the **MIDI**, both, or neither for playing your songs. You also need to use the **MIDI Parameters** window (described above) to control **MIDI** playback.

When you start *Music Studio 88*, both **MIDI** and the **ATARI** are turned on.

- To play the **MIDI** with your **ATARI**, make sure **Turn MIDI Off** is not selected, then set the controls in the **MIDI Parameters.**

- To play the **MIDI** only, make sure **Turn MIDI Off** is not selected and **Turn ATARI Off**, then set the controls in the **MIDI Parameters** window.

Note: When a song is started *Music Studio 88* issues a **START SONG MIDI** command.

MIDI Clock OUT

This feature causes a **MIDI** clocking data byte to be issued based upon the *Music Studio 88* **tempo.** In this way external **MIDI** devices can be synchronized with and driven by the *Music Studio 88* song.

MIDI Clock IN

This feature causes the *Music Studio 88* player to obtain its timing information from external **MIDI** clocking information rather than the **ATARI** clock. In this way external **MIDI** devices can be synchronized with and used to drive the *Music Studio 88* song.

Chapter 12

Glossary

Glossary of Terms

Accent   ⇒

A symbol used with a note to indicate that it should be played slightly louder than the other notes surrounding it.

ADSR Graph

A graph showing the volume of a note played by an instrument as it changes over time. Each instrument has a unique ADSR graph. To duplicate the sound of an instrument with *Music Studio 88*, you design an ADSR graph that matches the original.

Attack

The change in volume of the initial sound of a note, as an instrument goes from no sound to full volume (see **ADSR Graph**).

Bass Clef   𝄢

This sign indicates the lower staff.

Chord

A set of two or more notes sounded together.

Clef

The symbols used to indicate the position of the staffs (see **Bass Clef** and **Treble Clef**).

Decay

The initial slight fade of an instrument's sound. Decay occurs immediately after the attack (see **ADSR Graph**).

Diatonic

A note that naturally falls on the scale for a particular key signature. For example, the diatonics of the C scale are all natural notes (C, D, E, F, G, A, B, C), while the diatonics of the D scale (D, E, F#, G, A, B, C#, D) include two sharps.

Dotted Note

A note with the dot symbol indicating that it plays for one and a half times its normal duration. For example, a dotted half note has the same duration as three quarter notes.

Duration

The length of a note. The longest duration note is the whole note; other notes are fractional portions of a whole: e.g., half, quarter, eighth.

Dynamics

The volume levels at which the passages of a song are played. Standard musical notation includes dynamics from "pp" (pianissimo or very quiet) to "ff" (fortissimo or very loud). In *Music Studio 88,* you adjust the dynamics throughout the song using the volume slider area.

Flag

The mark attached to the stem of certain notes (e.g. eighth, sixteenth) to indicate their duration.

Flat

The symbol, which indicates a note played a half step below the diatonic pitch.

Grand Staff

The upper (**treble clef**) and lower (**bass clef**) staffs together.

Key Signature

The set of sharps and flats placed at the beginning of the staff (with the clefs and the time signature). The key signature indicates the scale in which a song is written. With no sharps or flats, the song is in C. A single sharp indicates G, two sharps indicate D major, and so on.

Leger Line

The line used to place notes above or below the staff. Leger lines are used to indicate extensions of the lines of the staffs.

Measure

A unit of measurement of a song which divides the staff into sections of equal duration. The length of a measure is determined by the time signature.

Measure Bar

A dividing line placed on the staffs to indicate each measure in a song.

MIDI

Musical Instrument Digital Interface: An international standard for communicating between electronic instruments and computers.

Natural   ♮

The symbol used to indicate a note that should not be played sharp or flatted. Naturals are used to override the diatonics for a particular key signature.

Note

A unit of sound (one pitch, one duration) within a song. The duration of a note is determined by the note itself, and any stem or flag attached. Its pitch is determined by its position on the staff. Durations of notes are all related: for example, a quarter note sounds twice as long as an eighth note, half as long as a half note.

	Whole Note		Quarter Note		Sixteenth Note
	4 counts		1 count		1/4 count
	Half Note		Eighth Note		Thirty-second Note
	2 counts		1/2 count		1/8 count

Octave

Two notes that are exactly eight whole steps apart. Both notes have the same position on the scale; for example, middle-C and the C above middle-C form an octave.

Pitch

The frequency of a note.

Release

The sound of an instrument as it fades; for example, the sound of a bell after it is struck or the sound of a guitar after the string is plucked. Release is the final phase on the **ADSR Graph.**

Repeat
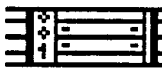
The symbols indicating that the passage between them is to be repeated. The number in the first symbol indicates the number of times for the repeat.

Rest

A musical stop sign. Rests are used to indicate durations of silence, and have the same set of durations as the notes.

	Whole Rest		Quarter Rest		Sixteenth Rest
	4 counts		1 count		1/4 count
	Half Rest		Eighth Rest		Thirty-second Rest
	2 counts		1/2 count		1/8 count

Scale

The set of musical steps that make up the natural sounds of a key. The scale for the key of C is C, D, E, F, G, A, B, C. The scale for F is F, G, A, Bb, C, D, Eb, F.

Sharp $\sharp$

The symbol used to indicate that anote is to be played one half step above the diatonic.

Staff

The horizontal bars used to indicate the positions of the notes of a song. There are two staffs, the upper staff (**treble clef**) and lower staff (**bass clef**). Together, they make up the grand staff. Leger lines are used to position notes that are either too low to sit on the lower staff, or too high to sit on the upper staff.

Stem

The upright or downward line attached to certain notes (e.g. quarter, eighth, sixteenth) as a duration indicator.

Sustain

The steady portion of an instrument's **ADSR Graph**, after the initial rise in volume and before the sound begins to fade. For example, the sound of a horn as the player continues to blow into it, or the sound of an organ as the key is held.

Tempo

The speed at which a song is played. Tempo is measured in beats per second. You set the tempo for a song or song-portion using the tempo slider area. Standard musical notation (written in Italian) ranges from "Largo" (very slow) to "Prestissimo" (very fast).

Tie   ⌣

The symbol, used to link two or more notes of the same pitch to indicate that they should be sustained from one note to the next.

Time Signature

The symbol at the beginning of the staff, with the clef symbols and the key signature. The top number indicates the number of beats in the measure, the bottom indicates the duration of each beat. 4/4 means four beats per measure, each beat one quarter note. 3/4 means three beats per measure, and each beat a quarter note.

Transpose

Move a song to a new key signature. When a song is transposed, all notes are changed to match the diatonics of the new key. For example, when a song in C is transposed to D, C's are raised to D's, E's are raised to F#'s, and B notes are raised to C#'s.

Treble Clef

The symbol indicating the upper staff.

Triplets

3

A group of three notes played for the duration of two notes of the same value is called a triplet. In *Music Studio 88,* the symbol when attached to the bottom of a note designates a triplet.

Volume

The loudness of a sound. Volume is important in two areas of composition with *Music Studio 88:* in setting the playback volume, or dynamics, of a song, and in setting the relative changes in volume of an instrument (see **ADSR Graph**) when designing instrument voices.

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